UNIVERSITY COLLEGE,

BRISTOL.

CALENDAR FOR THE SESSION

1884-85.

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THE College supplies for persons of either sex above the ordinary school age the means of continuing their studies in Science, Languages, History and Literature; and particularly affords appropriate instruction in those branches of Applied Science which are more nearly connected with the arts and manufactures. A course of instruction has been arranged for students intending to become Engineers, Surveyors or Architects. Special attention is given to class teaching and laboratory work.

The wants of teachers, clerks, artisans and others, who are employed during the day, are supplied by evening classes and courses of lectures, to which admission may be obtained at low fees.

Medical education is provided by the Bristol Medical School, which is affiliated to the College.

Arrangements for students who may desire to live with a family have been made with residents near the College, who are willing to receive students into their houses during the College Session. For information with regard to terms, etc., application should be made to the Principal, from whom information respecting lodgings for students may also be obtained.

Mrs. RAMSAY will attend at the College at the beginning of each Term for the purpose of admitting women students, and of giving information

with regard to homes where women students can be received, and of affording such advice as may be required.

The Calendar is published at the end of the third Term in each year. When necessary, a Supplement is published in October, containing the results of the Examinations held at the end of the third Term, and an account of such changes as take place during the vacation. This is to be had gratis, on application to the Registrar and Secretary.

All inquiries and applications for admission to any of the classes must be made at the College in Tyndall's Park.

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University College, Bristol.—Calendar.

1884-85.

	SEPTEMBER—1884.	
15	Meeting of Local Executive Committee, 4.15 p.m.	M
17	Candidates for College and Catherine Winkworth Scholarships to send in their names to the Registrar.	W
25	Scholarship Examinations begin.	Th
	OCTOBER.	
1	Winter Session of Medical School begins.	W
1	Admission of Medical Students.	W
2	Admission of Day Students begins, and continues daily, 10 to 1 o'clock.	Th
4	Meeting of Educational Board, 3.30 p.m.	S
6	Meeting of Local Executive Committee, 4.15 p.m.	M
6	Election of College and Catherine Winkworth Scholars.	M
6	Opening Address, by Professor Hele Shaw, at 8 p.m., in the Lecture Room of the Bristol Museum and Library.	M
7	First (or Winter) Term begins.	Tu
7	Admission of Evening Students begins, 6.30 to 8.30 p.m.	Tu
7	First Section of Permanent Buildings in Tyndall's Park opened in 1880.	
10	First Session of the College opened, 1876, in temporary premises.	
20	B.Sc. Examination of the University of London begins.	M
27	Address to Students by the Very Rev. Dr. Stanley, Dean of Westminster, 1877.	
27	B.A. Examination of the University of London begins.	M
	NOVEMBER.	
1	Meeting of Educational Board, 3.30 p.m.	S
3	Meeting of Local Executive Committee, 4.15 p.m.	M
3	M.B. Examination of the University of London begins.	M
19	Meeting of Council, 2.30 p.m.	W
19	Annual Ordinary General Meeting of Governors, 4.30 p.m.	W
	DECEMBER.	
6	Meeting of Educational Board, 3.30 p.m.	S
8	Meeting of Local Executive Committee, 4.15 p.m.	M
10	First Term Examinations begin.	W
16	First Term ends.	Tu

Calendar, 1885.

	JANUARY—1885.	
12	Matriculation Examination of the University of London } begins.	M
15	Address to Students by the Right Hon. G. J. Goschen, M.P., 1879.	
15	Second Section of Permanent Buildings opened in 1883.	
16	Address to Students by Dr. William B. Carpenter, C.B., 1880.	
16	Second (or Spring) Term begins.	F
	FEBRUARY.	
7	Meeting of Educational Board, 3.30 p.m.	S
9	Meeting of Local Executive Committee, 4.15 p.m.	M
18	Meeting of Council, 2.30 p.m.	W
31	Candidates for Honour Certificates in Inorganic Chemistry } and Engineering to send in their names to the Registrar.	Th
	MARCH.	
7	Meeting of Educational Board, 3.30 p.m.	S
7	Candidates for Whitworth Scholarships to send in their } names to the Registrar.	S
9	Meeting of Local Executive Committee, 4.15 p.m.	M
20	Candidates for Examinations of Science and Art Depart- } ment to send in their names to the Registrar.	F
26	Second Term Examinations begin.	Th
31	Winter Session of the Medical School ends.	Tu
	APRIL.	
1	Second Term ends.	W
28	Third (or Summer) Term begins.	Th
	MAY.	
1	Summer Session of Medical School begins.	F
1	Admission of Medical Students.	F
2	Meeting of Educational Board, 3.30 p.m.	S
11	Meeting of Local Executive Committee, 4.15 p.m.	M
25	Monday in Whitsun Week } College closed.	M
26	Tuesday in Whitsun Week	Tu
26	Candidates for Honour Certificates (except in the subjects } of Inorganic Chemistry and Engineering) to send in } their names to the Registrar.	Th
27	Meeting of Council, 2.30 p.m.	W

Calendar, 1885.

	JUNE.	
1	Candidates for Gilchrist Scholarships to send in their names to the Principal.	M
1	M.A. Examination (Branch I.) of the University of London begins.	M
6	Meeting of Educational Board, 3.30 p.m.	S
8	Oxford University Examination for Women (held in Bristol) begins.	M
8	M.A. Examination (Branch II.) of the University of London begins.	M
11	Public Meeting held to promote the establishment of the College, 1874.	
15	Meeting of Local Executive Committee, 4.15 p.m.	M
15	Matriculation Examination of the University of London, held in the College, begins.	M
15	M.A. Examination (Branch III.) of the University of London begins.	M
22	Cambridge University Higher Local Examination, held in the College, begins.	M
25	Third Term Examinations begin.	Th

	JULY.	
1	Third Term ends.	W
20	Intermediate Examination in Arts of the University of London begins.	M
20	Intermediate Examination in Science of the University of London begins.	M
20	Preliminary Scientific (M.B.) Examination of the University of London begins.	M
27	Intermediate Examination in Medicine of the University of London begins.	M
31	Summer Session of Medical School ends.	F

	AUGUST.	
9	College incorporated, 1876.	

UNIVERSITY COLLEGE, BRISTOL.

ESTABLISHED 1876.

Calendar for the Session 1884=85.

GOVERNORS OF THE COLLEGE.

(1) All Donors of £50 and upwards, *for life ;* and all Annual Subscribers of £5 and upwards, *during subscription.*

(2) Nominees of Corporate Bodies or Associations, who are Donors of £250 or upwards, *in perpetuity ;* or Annual Subscribers of £10 or upwards, *during subscription.*

(3) Certain Official and Representative persons.

Eleven Members of the Council are elected by the Governors.

All Governors are entitled to vote on the following scale :—

Corporate Bodies, or Associations.		Individuals or Firms.			To have votes as under on account of contributions.
Donors of	Subscribers of	Donors of	Subscribers of		
£250	£10	£50	£5	......	1
500	20	100	10	......	2
1000	50	250	25	......	3
2000	100	500	50	......	4
3000	150	750	75	......	5
4000	200	1000	100	......	6

PRESIDENT.

THE VERY REV. GILBERT ELLIOT, D.D., Dean of Bristol.

PRINCIPAL.

WILLIAM RAMSAY, Ph.D.

COUNCIL.

Albert Fry, Esq., *Chairman.* (1)
William Killigrew Wait, Esq., *Vice-Chairman.* (8)
William Proctor Baker, Esq., *Treasurer.* (1)
Francis Nonus Budd, M.A., Senior Fellow of Gonville and Caius
        College, Cambridge. (1)
Rev. John Wm. Caldicott, D.D. (1)
Nelson C. Dobson, F.R.C.S. (9)
Very Rev. Gilbert Elliot, D.D. (11)
Lewis Fry, Esq., M.P. (1)
Rev. Hereford B. George, M.A., Fellow and Tutor of New
        College, Oxford. (7)
William Edwards George, Esq. (1)
Rev. Frederic William Gotch, M.A., LL.D. (1)
Rev. B. Jowett, M.A., Vice-Chancellor of the University of
        Oxford, Master of Balliol College and Regius Professor
        of Greek. (6)
Rev. John Percival, M.A., LL.D., President of Trinity College,
        Oxford, and Canon of Bristol Cathedral. (1)
George Frederick Schacht, F.C.S., late Vice-President of the
        Pharmaceutical Society of Great Britain. (1)
William Smith, Esq. (1)
William H. Spencer, M.A., M.D. (9)
James Stuart, M.A., Professor of Mechanism and Applied
        Mechanics, Cambridge. (3)
Edward B. Tylor, D.C.L., F.R.S., Keeper of the Museum,
        Oxford. (2)
Frederick Wills, Esq. (1)
Rev. James M. Wilson, M.A., Head Master of Clifton College. (5)
Philip J. Worsley, B.A. (4)
James Wyld, F.R.G.S., D.C.L. (10)

(1) Elected by the Governors of the College. (2) Nominated by the Vice-Chancellor of the University of Oxford. (3) Nominated by the Vice-Chancellor of the University of Cambridge. (4) Nominated by the Vice-Chancellor of the University of London. (5) Nominated by the Lord President of the Privy Council. (6) Nominated by Balliol College, Oxford. (7) Nominated by New College, Oxford. (8) Nominated by the Principal and Professors of the College. (9) Nominated by the Bristol Medical School. (10) Nominated by the Worshipful the Clothworkers' Company. (11) *Ex-officio* a Member of the Council.

Registrar and Secretary.

Alfred E. Stock.

Bankers.

Messrs. Miles, Cave, Baillie & Co., Bristol Old Bank.

PROFESSORS AND LECTURERS.

Chemistry - - - - - { Professor, W. RAMSAY, Ph.D.
Lecturer and Demonstrator,
          SYDNEY YOUNG, D.Sc.

Mathematics - - - - Lecturer, D. CODRINGTON SELMAN.

Experimental Physics - { Professor, S. P. THOMPSON, D.Sc., B.A.
Demonstrator,

Engineering - - - - { Professor, H. S. HELE SHAW.
Lecturer, D. CODRINGTON SELMAN.

Architecture - - - - Lecturer, W. EDWARD JONES.

Geology, Biology and Zoology - - - - - } Professor, C. LLOYD MORGAN.

Botany - - - - - - Lecturer, A. LEIPNER.

Political Economy - - Lecturer, R. MARY FRY.

Philosophy and Logic - Professor, R. FANSHAWE, M.A.

Modern History and English Literature } Professor, JAMES ROWLEY, M.A.

Greek and Latin - - - { Professor, R. FANSHAWE, M.A., late
Fellow of New College, Oxford.

Hebrew - - - - - - Lecturer, BERNHARD HEYMANN.

French - - - - - - { Lecturers, EUGÈNE PELLISSIER,
          M.A., LL.B., B.Sc.
          A. d'OURSY, B.A.

German - - - - - - Lecturer, A. LEIPNER.

SCHOLARSHIPS TENABLE AT THE COLLEGE.

GILCHRIST SCHOLARSHIPS.

Secretary to the Gilchrist Educational Trust:

WILLIAM B. CARPENTER, M.D., C.B., F.R.S.,

4 Broad Sanctuary, Westminster, S.W.

Conditions for Scholarships instituted by the Gilchrist Educational Trust in connection with University College, Bristol:

A Scholarship of the value of £50 per annum, tenable for Three Years, will be annually awarded, by competitive Examination, under the following conditions :

1.—Every Candidate must apply to the Principal of University College, Bristol, before June 1st, and submit to him a certificate of age and satisfactory testimonials to character.

2.—Every Candidate must have completed his *sixteenth* year, and his age on the day of election must not exceed *eighteen* years.

3.—Candidates approved by the Principal shall present themselves at the Midsummer Matriculation Examination of the University of London ; and the Scholarship of £50 shall be awarded to the Candidate who shall stand highest at that Examination, provided that he pass in the *Honours* Division.

4.—Every Scholar shall attend in each year at least three Courses of Lectures, to be selected by himself, in University College, Bristol, provided that the total number

of lectures in such courses averages twelve lectures per week throughout the Session. But if permitted by the authorities of the College, he may spend his third year at some other College.

5.—Every Scholar shall present, on his applying for each half-yearly instalment of his Scholarship (which will be payable on the 1st of January and the 1st of July), a certificate from the Principal of University College, Bristol, that his conduct has been good, and that he is pursuing his studies with a view to graduation in the University of London in one of the following Faculties: Arts, Laws, Science, or Medicine.

6.—Every Scholar shall be required to present himself at the Intermediate Examination in one of the above-named Faculties of the University of London, at an interval of not more than two academical years from his election, unless excused from doing so by the Gilchrist Trustees; and if he do not so present himself (unless by permission of the Trustees), or if he fail to pass the Examination, he shall be considered as having forfeited his claim to the remaining instalments of his Scholarship.

NOTE. (1) These Scholarships are open to women.

(2) Half a day of Laboratory Work will be taken as equivalent to a Lecture.

COLLEGE SCHOLARSHIPS.

The following College Scholarships will be competed for in September, 1884 :

Three General Scholarships of the value of £25, £15, and £10 respectively, tenable for one year; open to men and women.

One Chemical Scholarship of the value of £25, tenable for one year; open to men and women.

The subjects of Examination will be :

CHEMISTRY (including Laboratory Work).
ARITHMETIC.
EUCLID.
ALGEBRA.
TRIGONOMETRY.
CONICS (Geometrical and Analytical).
DIFFERENTIAL AND INTEGRAL CALCULUS.
APPLIED MECHANICS.
GEOMETRICAL DRAWING (Plane and Solid).
MACHINE CONSTRUCTION AND DRAWING.
HEAT, SOUND, AND LIGHT.
ELECTRICITY AND MAGNETISM.
GEOLOGY AND PHYSICAL GEOGRAPHY.
ZOOLOGY AND PALÆONTOLOGY.
BOTANY (Structural and Physiological).
POLITICAL ECONOMY.
LOGIC.
MORAL PHILOSOPHY.
ENGLISH HISTORY, from the death of Edward I. to the battle of Bosworth.
ENGLISH LITERATURE, from the death of Pope to the death of Cowper.
GREEK LANGUAGE, LITERATURE, AND HISTORY.
LATIN LANGUAGE, LITERATURE, AND HISTORY.
FRENCH LANGUAGE AND LITERATURE.
GERMAN LANGUAGE AND LITERATURE.

Candidates will be allowed to enter in as many of the above subjects as they choose. Twenty per cent. of the full marks in each subject will be deducted from the marks obtained by each candidate before adding them up to form the total of the candidate's marks. Information as to the full marks for each subject can be obtained on application to the Principal.

The minimum age is fixed at sixteen. The successful candidates must be prepared to show certificates of birth, and give references if required. Candidates must send in their names and lists of subjects, not later than Wednesday, the 17th September, to the Registrar and Secretary.

The Examination will begin at ten o'clock on Thursday, the 25th September.

The Chemical Scholarship will be awarded principally by the marks obtained in Chemistry; but in case the marks obtained in this subject by the best candidates are nearly equal, account will be taken of their marks in other subjects.

The Chemical Scholar will in general be required to work in the Laboratory for six days a week during the Session Every other Scholar will be required to attend at least two Courses of Lectures, in the day time, in each of the three Terms of the Session, and to satisfy the Professor or Lecturer in the examinations held at the end of each Term.

CATHERINE WINKWORTH SCHOLARSHIPS.

The Catherine Winkworth Scholarships were founded by subscriptions in memory of the late Catherine Winkworth, of Clifton. These Scholarships, which are tenable at the College, are awarded annually, and are competed for at the same time and under the same regulations as the College Scholarships (see above).

Two Scholarships, each of the value of £15, will be awarded in September, 1884. They are open only to women who have not held a Scholarship at the College for more than one year. Candidates must send in their names and lists of subjects, not later than Wednesday, the 17th September, to the Registrar and Secretary.

The Examination will begin at 10 o'clock on Thursday, the 25th September.

JOHN STEWART SCHOLARSHIPS.

The John Stewart Scholarships will consist of the interest of the sum of £1,000 bequeathed to the College by the late John Stewart, of Montpelier, Bristol.

They will be tenable at the College in and after the Session 1885–86, and particulars with regard to them will be announced as soon as possible.

ORDINARY CERTIFICATES.

Any student who diligently attends a course of instruction in any subject during a Session, and obtains a place in the first or second class in the Examination at the end of the course, shall be entitled to receive a certificate from the College.   Ordinary Certificates are not, however, granted for Elementary Classes in Languages.

HONOUR CERTIFICATES.

1. An *Honour Certificate* shall be granted, after examination by an External Examiner, in conjunction with the Professor or Lecturer of the subject, to any student of the College who has diligently attended a course of instruction in any one of the subjects specified below, for three hours a week during three Terms, or two hours a week during four Terms :—

GROUP I.

INORGANIC CHEMISTRY.
ORGANIC CHEMISTRY.
PURE MATHEMATICS.
APPLIED MATHEMATICS.
ENGINEERING, PART I. (viz., the Theory of Structures, Geometrical Drawing, Surveying, and Levelling).
ENGINEERING, PART II. (viz., The Theory of Mechanism, Prime Movers, Machine Design and Drawing).
PHYSICS.
GEOLOGY.
ZOOLOGY.
BOTANY.

GROUP II.

POLITICAL ECONOMY.
LOGIC.
MORAL PHILOSOPHY.

GROUP III.

MODERN HISTORY.
ENGLISH LANGUAGE AND LITERATURE.
GREEK LANGUAGE AND LITERATURE.
LATIN LANGUAGE AND LITERATURE.
GREEK AND ROMAN HISTORY.
FRENCH LANGUAGE AND LITERATURE.
GERMAN LANGUAGE AND LITERATURE.

2. Candidates for Honour Certificates, before proceeding to examination, must obtain the consent of the Principal, who will provide them with a form of admission to the examination. These forms must be sent to the Registrar, with the fee for examination, on or before the 26th May, except in the case of candidates for certificates in Inorganic Chemisty and Engineering, whose forms must be sent in not later than the 31st February.

3. *Times of Examination.* The Examination for Certificates will in general be held at the end of June, except in Inorganic Chemistry and Engineering, in which subjects the Examination will be held at the end of March.

4. *Fees for Examination.* Each candidate shall pay 10/- for examination in each subject.

ASSOCIATESHIPS.

1. The title of Associate of University College, Bristol, will be conferred on all candidates who—

A.—Shall have diligently attended an amount of instruction in the College equivalent to three courses of three hours a week each in each of three Terms during two Sessions ; and shall have obtained a certificate of satisfactory conduct ; and

B.—Shall have obtained some one of the four following distinctions, namely—

    (i) College Honour Certificates in four subjects, not more than three of which are in any one Group, provided that if three of them are in Group III. one of them be Latin ;

    (ii) A certificate, granted by the Examiners and approved by the Council, of having produced an essay or original investigation of exceptional merit, together with Honour Certificates in three subjects ;

(iii) The degree of B.A., B.Sc., M.A., M.D. or M.S. of some University in the United Kingdom ; or

(iv) Such distinction in the Oxford University Examination for Women, or the Cambridge University Higher Local Examination, as from time to time shall be considered sufficient.

NOTE.—For the present a class in Honours in each of two sections of the second part of the Oxford Examination will be considered sufficient ; or a first class in each of two of the four Groups B, C, D, E of the Cambridge Examination, and a second class in a third group.

2. The title of Associate in Engineering shall be granted, on application, to all candidates who have complied with condition A, and who obtain an Honour Certificate in Engineering, Part I., and in Engineering, Part II., and in three of the subjects, Pure Mathematics, Applied Mathematics, Physics, Geology, and Chemistry ; provided that one at least of his certificates be in Pure or Applied Mathematics.

3. The title of Associate in Chemistry shall be granted, on application, to all Candidates who have complied with condition A, and who obtain Honour Certificates in Inorganic and in Organic Chemistry, and in either Pure Mathematics or Physics; and who pass satisfactory examinations in Qualitative and Quantitative Analysis.

4. Associates shall be entitled to admission to such lectures and on such terms as the Council shall from time to time direct.

NOTE.—For the present they shall be admitted free to all day lectures.

5. The Council may elect, on the recommendation of the Educational Board, former students of the College who, though not possessed of the foregoing qualifications, shall have distinguished themselves in Literature, Science or Art, or in some career of public usefulness ; provided that no person shall be so recommended within seven years after he has first entered as a Student.

6. Every Associate shall hold his Associateship and

enjoy its privileges subject to the rules and regulations for the time being in force in the College, and may be deprived of it by the Council on the recommendation of the Educational Board.

LIBRARY.

A Library is open for the use of past and present Students.

REGULATIONS.

1. The Library is open for the use of past and present students of the College. Application for the loan of, or for reference to, books should be made either at the Registrar's Office or at the Porter's room, where catalogues of the books contained in the Library may be consulted.

2. The books which are kept for loan must not be kept out beyond the specified number of days; but if no application has been made for the book, the student, by re-entering it, may retain the book for a further period.

3. The books which are kept for reference are on no account to be removed from the College premises, and must be returned immediately after the student has consulted it.

4. A receipt must in every case be signed by the student on receiving a book either for reference or loan.

5. In the case of an injury being done to any book, the student injuring it will be required to substitute another copy in its place.

6. All books must be returned to the Library on or before the last day of the Session.

LOCKERS.

Lockers are provided in the cloak-rooms, for the use of Students, at a charge of 1/- for one Term, or 2/6 for a Session. Each Student will be required to deposit 1/- with the Registrar, to whom the key of the Locker must be returned on or before the last day of the Session. The deposit will be returned to the Student when the key is given up, provided the Locker is uninjured.

SESSION 1884-85.

THE Session will be opened with an Introductory Address by Professor H. S. Hele Shaw, on Monday, the 6th of October, 1884, and will end on 1st of July, 1885. The Session is divided into the following Terms :—

First (or Winter) Term—

    Commencement -   -   -   7th October, 1884.
    Termination   -   -   -   16th December, 1884.

Second (or Spring) Term—

    Commencement -   -   -   16th January, 1885.
    Termination -   -   -   -   1st April, 1885.

Third (or Summer) Term—

    Commencement -   -   -   28th April, 1885.
    Termination -   -   -   -   1st July, 1885.

The College is closed on Whit-Monday and Whit-Tuesday, the 25th and 26th May.

Examinations will be held at the following dates :—

    First Term -   -   10th to 16th December.
    Second Term   -   26th March to 1st April.
    Third Term -   -   25th June to 1st July.

SESSION 1884-85.

DAY LECTURES.

GENERAL REGULATIONS.

(1.) Persons under the age of 16 years seeking admission as day students will be required to pass an entrance examination in English Grammar and Composition, and in Elementary Mathematics. This examination will in general be held on the first day of Term, but any candidate who desires to be admitted to it must give two days notice.

(2.) The Principal will attend at the College for the purpose of admitting students at the beginning of each Term.

(3.) Every candidate for admission may be required to produce such testimonial of good character as shall be satisfactory to the Principal.

(4.) Every student on admission must sign an undertaking to observe all the regulations affecting students made by the Council of the College for the time being.

(5.) Every student must obtain a card of admission to the classes which he enters. This is issued by the Registrar and Secretary, on the presentation of a certificate signed by the Principal, and on payment of the fees. No student is entitled to attend the classes until he has complied with this regulation. The first lecture of every course will however be free.

(6.) A record will be kept of the attendance of students. A report of the attendance of any student will be periodically sent to his parents or guardians if they require it.

(7.) Disorderly conduct on the part of any student will be reported to the Principal, who will adopt such action thereon as he may deem necessary.

(8.) Every student is required to provide himself with a College Calendar.

The Council reserve to themselves the power of suspending any class, if there are not a sufficient number of entries.

FEES.

The fees are as a rule :—For a course of instruction of three or more hours a week, £5 5s. for three Terms, £4 4s. for two consecutive Terms, £3 3s. for the first or second Term singly, £2 2s. for the third Term. Some exceptions to this rule will be found in the statements of fees which are appended to the accounts given further on of the subjects of the several courses.

An entrance fee of 7s. is charged for each course; but all entrance fees for one Session may be compounded for by a single payment of a registration fee of £1 1s.

DEPARTMENT OF ENGINEERING AND THE CONSTRUCTIVE PROFESSIONS.

Particulars with regard to the courses arranged for students intending to become civil, mechanical, or electric engineers, surveyors or architects, are set forth in the prospectus of this department, page 75.

Day Lectures.

SUBJECTS OF INSTRUCTION.

INORGANIC CHEMISTRY.

Professor W. Ramsay, Ph.D.

Lecturer and Demonstrator, Sydney Young, D.Sc.

This course treats of the principles of Chemistry, and of the Chemistry of the Non-Metals and Metals.

Lectures will be given at nine o'clock on Mondays, Wednesdays, Fridays, and Saturdays during the first and second Terms.

The lectures will be illustrated with experiments and diagrams.

Examinations will be held from time to time during the course.

Syllabus.

Principles of Chemistry.

Ancient and Modern Ideas of the Nature of Matter — Elements — Compounds and Mixtures— Synthesis and Analysis — Laws of Chemical Combination—Properties of Gases—Atomic Weights— Diffusion of Gases — Specific Heats — Molecular Weights—Specific Heats of Compounds—Specific Volumes of Liquids and Solids—Heats of Combination—Spectroscopy—Relations of Light and Electricity to Chemistry—Influence of Time and Mass on Chemical Processes.

Non-Metals.

The Non-Metals will be described in their order; their properties, and the properties of their compounds, and the relation subsisting between them, will be shown.

Metals.

Periodic Law—All the more important metals and their salts will be described; together with the methods of extraction from their ores and the preparation of their compounds.

This course covers the subjects prescribed for the following Examinations of the University of London:—First Term, Matriculation; first and second Terms, Preliminary Scientific (M.B.), Intermediate Examination in Science, Intermediate Examination in Medicine. For the three latter examinations attendance at the Laboratory is also requisite; and for the Intermediate Examination in Science and the Intermediate Examination in Medicine, the lectures on Organic Chemistry should be attended.

Text-books.—Roscoe and Schorlemmer's *Treatise on Chemistry;* or Thorpe's *Inorganic Chemistry;* or Fowne's *Manual of Inorganic Chemistry;* or Miller's *Elements of Chemistry;* and Thorpe's *Chemical Problems.*

Fee, £4 4s. for two Terms; £3 3s. for one Term.

ORGANIC CHEMISTRY.

Professor W. RAMSAY, Ph.D.

This course will relate to the more important groups of the Compounds of Carbon.

Lectures will be given during the second Term on Tuesdays and Thursdays at ten o'clock; during

the third Term on Tuesdays, Thursdays, and Saturdays at ten o'clock.

Students are recommended to take this course during the second year of their chemical studies; but, if necessary, they can take it during the first year.

SYLLABUS.

History of the Chemistry of Carbon—Determination of the Composition of Carbon Compounds—Empirical and Rational formulæ—Classification—Hydrocarbons — Alcohols — Carbohydrates — Aldehydes and Ketones—Acids—Simple and Compound Ethers—Compound Ammonias—Characteristics of Aromatic substances—Benzene and its derivatives—Napthalene and Anthracene and their derivatives—Pyridine, Chinoline, and their derivatives—Dyes—Alkaloids—Animal and Vegetable Educts.

Special Lectures.

The Paraffin Industry—Brewing and Distilling—Acetic Acid Manufacture—Soap Making and Candles—Sugar—Explosives—Artificial Colours and Dyes—The Alkaloids.

Text-books. — Armstrong's *Organic Chemistry;* Schorlemmer's *Chemistry of the Carbon Compounds;* or Armstrong and Grove—Vol. III. of Miller's *Chemistry.*

Fee, £3 3s.

ADVANCED COURSE OF CHEMISTRY.

Professor W. RAMSAY, Ph.D.

This course will be given on Saturdays at nine o'clock during the Session, and will be devoted to a minute consideration of Chemical Theory, as shown in recent researches.

FIRST TERM.—Volume Relation of Solids, Liquids, and Gases — Relations between Constitutive and Refractive Index for Light, &c.

SECOND AND THIRD TERMS.—Thermal Chemistry.

Fee for the course, £3 3s.; for a single Term, £1 1s.

PRACTICAL CHEMISTRY.

LABORATORY INSTRUCTION.

Professor W. RAMSAY, Ph.D.

Lecturer and Demonstrator, SYDNEY YOUNG, D.Sc.

The Laboratory is open daily, from 10 a.m. to 5 p.m., except on Saturdays, when it closes at 1 p.m. Instruction is given in the Laboratory on all branches of Practical Chemistry, including Qualitative and Quantitative Inorganic and Organic Analysis, the preparation of Chemical Products, and Inorganic and Organic Research. Special facilities will be afforded to those who desire to study Practical Chemistry as applied to the different processes employed in the Arts and Manufactures, and to Scouring, Bleaching, and Dyeing. The Laboratory will be under the immediate supervision of the Professor and of the Lecturer.

Each student will be required to provide, at his own expense, a set of ordinary apparatus, at a cost of about 30s. Expensive apparatus, gas, fuel, water, and the ordinary reagents will be provided by the College. The cost of material for original research must be paid by the student.

Text-books.—For junior students: Ramsay's *Chemical Theory;* Jones's *Qualitative Analysis.* For advanced students : Thorpe's *Quantitative Analysis;* Crooke's *Select Processes;* Sutton's or Fleischer's *Volumetric Analysis.* A small library of chemical books is accessible at all times to students working in the Laboratory.

FEES IN GUINEAS—

	6 days a week.	5 days a week.	4 days a week.	3 days a week.	2 days a week.	1 day a week.
For the Session...	17	15	13	10	7½	5
" two Terms...	13	11	9	7½	5½	4
" one Term ...	7	6	5	4	3	2
" one Month...	3	3	2	2	1½	

Students may, for convenience, arrange to divide their days of Laboratory work into half-days.

SPECIAL CHEMICAL LABORATORY COURSE.

Professor W. Ramsay, Ph.D.

Lecturer and Demonstrator, Sydney Young, D.Sc.

Special instruction will be given on Tuesdays and Thursdays, from 3 to 5, during the first and second Terms. The course is designed for students entering for elementary examinations in Chemistry, and others to whom the hour may prove convenient.

Fee, £3 3s. for two Terms; £2 2s. for one Term.

CORRESPONDENCE CLASS IN PRACTICAL CHEMISTRY FOR CLOTHWORKERS AND DYERS.

Professor W. Ramsay, Ph.D.

(With the co-operation of the Worshipful Company of Clothworkers, London.)

Correspondence Classes are held for the purpose of giving instruction in Chemical processes, important to those engaged in the manufacture of woollen goods.

The instruction is given weekly. Each student will be required to provide himself with the necessary apparatus, a list of which will be provided.

The cost of this apparatus will not exceed 30s. A paper containing the description of the process to be carried out, together with, when necessary, a sample of material to be tested, will be sent to the student each week. The student will have a week during which the analysis may be performed, and he will be expected to forward a statement of the results obtained, together with questions on any points on which he may desire information. These questions will be answered by the Professor as fully as time will permit, and references will be made to books from which fuller information may be obtained.

The following is an outline of the course of instruction, which will consist of twelve lessons :—

I.—Analysis of water.

    (1) Total solid residue.
    (2) Hardness :—(a) Total ; (b) Permanent ; (c) Temporary.
    (3) Tests for presence of iron in water.
    (4) Estimation of iron in water.

II.—Methods of purifying water.

    (1) Reduction of hardness.
    (2) Removing iron.

III.—Analysis of scouring material.

    (1) Soda crystals.
    (2) Soda ash.
    (3) Preparation of standard acid.
    (4) Use of indicators ; litmus, phenol-phthalëin, &c.

IV., V.—Analysis of soap. Description of hard and soft soaps.

    (1) Total water.
    (2) Ash.
    (3) Fatty acids.
    (4) Alkali.
    (5) Resin.
    (6) Free fats.

VI.—Methods of recovering oils and reconverting into soaps.

VII., VIII.—Estimation of bleaching materials.

- (1) Bleaching powder. (*a*) Copperas process; (*b*) Iodide of potassium process; (*c*) Arsenic process.
- (2) Sulphurous acid. Iodine process. Sulphite of soda.   "   "
- (3) Peroxide of hydrogen.

IX.—Estimation of indigo.

- (1) Process with bleaching powder.
- (2) Bichrome process.

X.—Recovery of indigo. Utilisation by Schützenberger and Lalande's method.

XI., XII.—Colorimetric method of estimating dyes. Estimation of the woods. Instance: logwood dye; cochineal, lac, &c.; aniline colours.

To this will be added tables by which dyes may be detected qualitatively. Samples of dyed goods will be forwarded, the dyes on which are to be detected experimentally.

Those desirous of joining this class are requested to forward their names to the Registrar previous to the 20th September, 1884. The class will begin on 7th October, and will be continued weekly.

The fee for the course is £1 1s.

CHEMICAL EXCURSIONS.

In order that students may have an opportunity of acquiring some knowledge of Applied Chemistry, excursions to some of the Mines and Manufactories of the neighbourhood will occasionally be made.

They will be conducted by the Professor or by the Lecturer. Past or present students of the College desirous of taking part in these excursions are invited to apply to the Professor of Chemistry.

PURE AND APPLIED MATHEMATICS.

Lecturer, D. CODRINGTON SELMAN.

Instruction will be given in Mathematics by means of lectures and classes, under three divisions. There will be also an Elementary Class in Theoretical Mechanics.

DIVISION I.

The subjects taught in this division comprise the work required for Matriculation at the University of London, the Science and Art Department, and Oxford and Cambridge Local Examinations; but the teaching is not restricted to a preparation for these Examinations.

The lectures are arranged as follows :—

Monday, 12—1. Arithmetic and Logarithms.

Wednesday, 12—1. Euclid and Mensuration.

Friday, 12—1. Elementary Algebra.

Problems will be set at each lecture, to be worked out by the students, and the home work will be examined and corrected by the Lecturer.

On Saturday there will be a Supplementary Class for individual instruction from 12 to 1.

DIVISION II.

Lectures, supplemented by class teaching and exercise papers, will be given as follows :—

Tuesday, 10—11. Algebra, Theory of Equations, Determinants.

Thursday, 10—11. Trigonometry, Plane and Spherical.

Saturday, 10—11. Geometrical Conic Sections. Co-ordinate Geometry of Two and Three Dimensions.

DIVISION III.

The work of this division will include :—

Differential and Integral Calculus.

Differential Equations and Finite Differences.

Analytical Statics, Dynamics of a Particle.

Elementary Rigid Dynamics, Hydromechanics.

These subjects will be taught on Tuesdays, Thursdays, and Saturdays, from 11 to 12.

The manner in which these subjects will be treated will depend on the wants of the students. During the first Term the lectures and class teaching will almost entirely deal with the Differential and Integral Calculus.

Text-books.—Division I. Hamblin Smith's *Arithmetic* ; Todhunter's *Euclid and Mensuration ;* Hamblin Smith's *Algebra.* Division II. Todhunter's *Algebra and Theory of Equations;* Todhunter's *Trigonometry, Plane and Spherical;* Wilson's *Conic Sections ;* Puckle's *Conic Sections.*   Division III.   Todhunter's *Differential and Integral Calculus;* Boole's *Differential Equations and Finite Differences;* Minchin's *Statics;* Tait and Steel's *Dynamics of a Particle;* Routh's *Rigid Dynamics.*

Fee for each course, £5 5s. for three Terms ; £4 4s. for two consecutive Terms ; £3 3s. for the first or second Term singly ; £2 2s. for the third Term.

THEORETICAL MECHANICS.

Lecturer, D. CODRINGTON SELMAN.

Tuesdays and Thursdays, 12—1.

This course, which extends through the Session, is arranged, during the first and second Terms, as a tutorial class for Engineering students of the first year, and will supplement the lectures on Engineering for the first year. The formula and principles involved in the teaching of the latter subject will be dealt with, and the various elementary problems on Mechanics will be numerically treated. The course is, however, complete in itself, and is an introduction to the higher course in Division III.

Fee, £3 3s. for three Terms; £2 2s. for two Terms; £1 11s. 6d. for one Term.

EXPERIMENTAL PHYSICS.

ELEMENTARY COURSE. (FIRST YEAR.)

Professor SILVANUS P. THOMPSON, D.Sc., B.A.

Demonstrator,

Tuesday and Thursday, 12—1.

FIRST TERM.—MECHANICS, HYDROSTATICS, &C.

Laws of Velocity, Acceleration, Force and Work. Problems in Statics and Kinatics. Friction. Elasticity. Laws of Equilibrium of Liquids and Gases. The Air Pump. The Barometer. Capillarity, &c.

Text-book.—Lodge's *Elementary Mechanics*, (W. & R. Chambers).

SECOND TERM.—HEAT.

Thermometry.—The effects of Heat on the mechanical properties of solids, liquids and gases.

Expansion, apparent and absolute.   Thermometers and Pyrometers.   Absolute Zero of Temperature. The Phenomena of Fusion, Crystallisation, Evaporation, Ebullition and Condensation.   Artificial Freezing.

Calorimetry.—Specific Heat, Calorimeters, Latent or Potential Heat.   Conduction of Heat.   Thermochemistry.

Text-book.—Deschanel's *Natural Philosophy*, Vol. II., Heat (Blackie and Son).

THIRD TERM.—GEOMETRICAL OPTICS.

Velocity and Intensity of Light.   Photometry. Laws of Reflexion, Refraction and Dispersion of Light.   Formation of Images by Lenses and Mirrors.   Calculation of Optical Combinations by Gauss's method.   The Telescope.   The Microscope.

This course covers the matter comprised in the subject of Natural Philosophy as prescribed for Matriculation in the University of London.

Text-book.—Aldis's *Geometrical Optics* (Deighton, Bell and Co.)

Fee, entire course, £4 4s.; two Terms, £3 3s.; one Term, £2 2s.

EXPERIMENTAL PHYSICS.

INTERMEDIATE COURSE.—(SECOND YEAR.)

Professor S. P. THOMPSON, D.Sc., B.A.

Demonstrator,

Monday, Wednesday, Friday, 11—12.

Two lectures of this course will be delivered in each week during the Session.   There will also be held one class each week for working problems and for supplementing the experimental work of the lectures.

The lectures will be delivered on Mondays and Wednesdays, at 11 a.m.

FIRST TERM.—GENERAL PHYSICS, THERMO-DYNAMICS AND MAGNETISM.

General Physics.—Fundamental and Derived Units of Measurement. The Centimetre-Gramme-Second System. General Relations of Matter and Energy. Central Forces. Universal Gravitation. Theory of Potential.

Thermodynamics.—Joule's Equivalent. Laws of Heat-Transference. The Law of Conservation of Energy as a fundamental principle of Physics.

Magnetism.—Magnets, Natural and Artificial. The Compass and Dipping Needle. Measurement of Magnetic Forces. Terrestrial Magnetism. Diamagnetism.

SECOND TERM.—ELECTRICITY.

Electric Currents.—Mechanical, Thermal and Chemical Methods of Generating Electric Currents. The Voltaic Cell. Batteries. Galvanometers. Electromagnetism. Action between Magnets and Currents. Phenomena of Induced Currents. The Induction Coil. Dynamo-electric Machines. Measurement of Resistence and Electro-motive Force.

Electric Charges.—Fundamental Experiments on Electrostatic Attractions and Repulsions. Notions of Electric Quantity and Distribution. Phenomena of Induction. Electrical Machines. The Leyden Jar. Measurement of Potential, Capacity, and Quantity. Electrometers. Phenomena of Discharge.

Applications.—Chemical Actions of the Current. Electrolysis and Electroplating. Thermoelectricity. Heating effects of the Current. Electric Lighting. Arc Lights. Incandescent Lamps. Accumulators.

Telegraphs.   Telephones and Submarine Cables.
Electro-motors and Electric Transmission of Power.

THIRD TERM.—ACOUSTICS, PHYSICAL OPTICS. RADIATION.

Sound.—Production and Propagation of Sound
Waves.   Velocity of Sound.   Reflexion of Sound.
Phonoscopes and Phonographs. Vibrations of Rods,
Strings and Columns of Air. Acoustical Interference.
Physical Theory of Music.   The Vowel Sounds.

Physical Optics.—The Wave Theory of Light.
Phenomena of Interference and Diffraction.   Double
Refraction and Polarisation of Light. Calorescence.
Chemical Actions of Light.   Spectrum Analysis.

Radiation.—Dispersion of Light.   The Spectro-
scope.   Phosphoresence and Fluorescence.   Radia-
tion and Absorption of Heat-Rays.   Theory of Ex-
changes.

The subjects of this course are arranged with a
view to the requirements of the Intermediate
Examination in Science of the University of London.
Students attending the Engineering course may take
the Electro-technical course in the third Term in
lieu of Acoustics, &c.

Text-books.—The text-books which students are advised to
purchase are S. P. Thompson's *Elementary Lessons in Electricity and
Magnetism* (Macmillan and Co.), and Everett's edition of Deschanel's
Natural Philosophy, Vol. IV., *Sound and Light* (Blackie and Son).
The following works, most of which are in the College Library, are
recommended for constant reference and reading :—Thomson and
Tait's *Natural Philosophy ;* Clerk Maxwell's *Theory of Heat ;* Shann's
Heat ; Maxwell's *Elementary Treatise on Electricity;* Müller-Pouillet's
Physik ; Jamin and Bouty's *Cours de Physique ;* Gordon's *Physical
Treatise on Electricity and Magnetism ;* Daniell's *Physics.*

Fee, entire course, £5 5s.; two consecutive
Terms, £4 4s.; first or second Term only, £3 3s.;
third Term only, £2 2s.

EXPERIMENTAL PHYSICS.

ADVANCED COURSE.—(THIRD YEAR.)

Professor S. P. THOMPSON, D.Sc., B.A.

Demonstrator,

Monday and Wednesday, 2—3.

An advanced Course of about forty lessons on Physics, treated mathematically and experimentally, will be given during the first and second Terms on Mondays and Wednesdays at 2. The course will comprise the following subjects :—

Heat.—The Laws of Temperature and of Specific and Latent Heat. The Laws of Conduction of Heat. The Laws of the Transformation of Heat. Thermodynamics. The Experimental Determination of Joule's Equivalent, of the ratio of the two specific heats of gases and other thermodynamic constants. The Kinetic Theory of Gases.

Electricity and Magnetism.—The Laws of Electrostatics. The Laws of Magnets and Electromagnets. Measurement of Electrical Quantities. Construction of Electrical Standards. The Laws of the Distribution of Electric Currents, and of the Transmission of Electric Energy. Choice of Electric and Magnetic Units. Ratio of the two systems of Units. The Electromagnetic Theory of Light.

The subjects comprised in this and the preceding course cover those prescribed for candidates in Physics for the degree of Bachelor of Science in the University of London.

Fee, two Terms, £4 4s.; one Term, £3 3s.

ELECTRO-TECHNICS.

Professor SILVANUS P. THOMPSON, B.A., D.Sc.

Tuesday, Wednesday and Thursday, 2—3.

This course will be delivered during the third Term.

SYLLABUS.

Dynamo-electric Machines.—Design and Construction of Armatures and Field Magnets. Arrangements for regulation of Velocity, Current and Potential.

Incandescent Lamps.—Theory of construction and use.

Arc Lamps.—Construction of Regulators. Electric Candles. Accessories, Cut-outs, Shunts, &c.

Electric Motors.—Design, construction and regulation. Electric Transmission of Power. Electric Railways.

Accumulators.—Theory of the various types.

Telegraphic and Telephonic Engineering. — Chief types of Instruments. Construction and testing of Lines.

Standard Electrical Instruments.—Theory, construction and use.

Fee, £2 2s.

PHYSICAL LABORATORY.

Professor S. P. THOMPSON, D.Sc., B.A.

Demonstrator,

PRACTICAL PHYSICS—LABORATORY INSTRUCTION.

The Physical and Electrical Laboratory is open daily from 10—5, except on Saturdays.

A general course of Laboratory Instruction will be carried on under the immediate supervision of the Professor and of his Demonstrator. The object of this course is to provide students with the means of acquiring skill in the use of the Instruments of physical measurement and research, and a knowledge of physical experimenting in general. The course includes the practical verification of the more general laws of physics, including acoustics, optics, heat, magnetism and electricity.

A special course of instruction in Electricity will be given to students working in the *Electrical Laboratory*. They will be instructed in the principles and practice of Electric Testing, in the measurement of Electromotive Force, Resistance, Electric Energy, and in the efficiency of Electric Machinery. Instruction will also be given in the management and testing of Dynamo-electric Machines, Electric Arc Lamps and Incandescent Lamps, and in the management and construction of Electric Instruments and Appliances in general use.

Any damage to apparatus arising from carelessness must be made good.

Students entering for Laboratory work will deposit 10/- in the hands of the Registrar as caution-money, to be returned at the close of the Session.

Students may for convenience arrange to divide their days of Laboratory work into half-days.

FEES IN GUINEAS—

	5 days a week.	4 days a week.	3 days a week	2 days a week.	1 day a week
For the Session	18	15	$11\frac{1}{2}$	$8\frac{1}{2}$	5
" two Terms	13	11	$8\frac{1}{2}$	6	4
" one Term	7	6		$3\frac{1}{2}$	2
		4			

ENGINEERING.

Professor H. S. HELE SHAW.

FIRST YEAR.

Monday, Wednesday and Friday, 10—11.

FIRST TERM.—*Experimental Course of Elementary Mechanics.*—Definitions, measurement, and laws of Motion, and the cause of Motion. The principles of work and its application to Machines. The centre of Inertia and its properties. The equilibrium of bodies at rest and in motion. Experimental investigation of the laws of Friction. Brakes and Friction Pullies and Clutches. Contrivances for reducing the effect of Friction. Principle and applications of the Screw. The preparation of truly Plane Surfaces, and the method of end measurement. Elements of Hydro-mechanics. The pressure of water on dock-gates, walls and embankments. Lifting and Force Pumps. The Hydraulic Press and Hydraulic Cranes and Motors. The laws of floating bodies. The pressure of air. Compression and Exhaust Pumps. Pressure and Vacuum Gauges.

SECOND TERM.—*Structures and Nature and Strength of Materials.*—Meaning of terms Stress, Strain, Factor of Safety, Resilience, &c. Nature of the loads to which a structure is subjected. Classification of framed Structures or Trusses. Condition of equilibrium of a structure. The elements of Graphic Statics. Reciprocal Diagrams of Forces and of Stresses. The Funicular Polygon. Graphical Solution of various examples of Roof and Bridge Trusses. The nature of internal resistance of various parts of a structure. Live and dead loads. Fatigue of materials. Testing Machines. Timber. Cast Iron and Castings. Wrought Iron and its uses. The hardening and tempering of Steel. Other metals

and different kinds of alloys. Simple calculations connected with the design of Beams and Girders. Beams of uniform strength. Strength of Columns and of Structures subjected to internal pressure.

THIRD TERM.—*Civil Engineering.*—Preservation of Timber. Artificial Stones and Hydraulic Cements. Brickwork. Masonry. The stability of Walls and Buttresses. Sub-structure and Foundations. Piles and Pile Driving. Cofferdams. Common Roads; Material, Construction, Maintenance and Draining. Stone, Wood and Asphalt Pavement. Railways; Broad and Narrow Gauge. Different kinds of Rails, their wear and cost. Switches and Crossings. Tunnels and Embankments. Tramways, the different systems of horse and steam traction. Classification of Canals. Laying out and construction of Locks. Foreign Canals. Streams and Rivers. Measurement of Velocity at different cross sections. Floods. Different kinds of facings for Banks. Construction of Dams and Weirs. Marine Engineering. Sea Defences aed Embankments. Breakwaters. Piers. Harbours. Docks. Supply of Water to Towns. Rain, spring, well and river water. Mode of distribution of water supply. Draining of Lands and Towns. Reclamation and Irrigation of Land.

Numerical and graphical examples will be set at the above lectures, which students will be expected to do as home work. The class in Theoretical Mechanics (*p.* 37) is, however, specially intended to provide class instruction in connection with the course in Engineering. Students will receive assistance in solving the graphical problems at the class in Engineering Drawing.

Text-books.—First Term, Goodeve's *Principles of Mechanics.* Second Term, Alexander's *Elementary Applied Mechanics* (Macmillan and Co.). Third Term, Law and Burnell's *Civil Engineering.*

The following works may be consulted with advantage :—First Term, Ball's *Experimental Mechanics.* Second Term, Bow's *Economics of Construction.*

SECOND YEAR.

Tuesday, Thursday, and Saturday, 11—12.

FIRST TERM.

Prime Movers.— (1.) Sources of Energy in Nature. The relative values of Fuel, Wind, Rainfall, and the Tides for motive power. General considerations concerning the change of Energy from one form to another. Efficiency of a Motor. (2.) Machines for utilizing the muscular power of men and animals. (3.) Theory of Heat Engines. (4.) Construction of Furnaces, and devices for effecting economical combustion. Transfer of Heat from the Furnace. (5.) Nature and Properties of Steam. The investigations of Watt and Regnault. Steam Boilers. The expansion of Steam in the cylinder. Indicators and the computation and reading of Indicator diagrams. The inventions of Savary, Newcomen and Watt. Varieties of Engines, Stationary, Locomotive and Marine. Compound Engines. The Pulsometer and Injector. (6.) Hot Air Engines. The inventions of Stirling and Ericsson, their advantages and disadvantages. Modern improvements in Hot Air Engines for purposes of small power. (7.) Gas Engines, early failures and modern improvements.

SECOND TERM.

Theory of Machines.— History of the Science. Lower and Higher Pairs of Elements. Kinematic Links and Chains. Force and pair Closure. Centroids and Axoids. The Theory of Toothed Wheels. Bevil and Screw Gearing. The notation and symbols of Reuleaux. Kinematic Analysis. Formulas of the Simple Machines, and of various other Mechanisms. Various examples of the Quadric Crank Chain found in Parallel and Straight Line

Motions, Sewing Machines, Printing and Engraving
Machines, Shearing Machines, Power Looms, Re-
versing and Quick Return Motions, etc. Various
examples of the Slider Crank Chain in Prime
Movers and other Machines. Chamber Crank Trains
and Chamber Wheel Trains. Wheels in Trains.
Epicyclic Trains. The nature of the Constructive
elements of Machinery. Free and fast click Trains,
Cams and Ratchets. Differential Screw and Pulley.
Apparatus for Measuring and for Regulating the rate
of Motion, such as Escapements of Clocks and
Watches, and Governors. The Analysis of various
miscellaneous contrivances and of complete Machines,
such as for Rope-making and other purposes. Kine-
matic Synthesis.

THIRD TERM.—CIVIL ENGINEERING.

The Theory of Structures.—The lectures during this
Term will treat more fully the subjects of the first
year, as follows :—

· Internal stress of materials, and compound state
of strain. The ellipse of stress. Stability of Earth-
work and of Retaining Walls. The theory and
relative advantages of various forms of Testing
Machines, and the manner of conducting Experi-
ments and of interpreting results. The results
obtained with the more important materials by
various Experimenters, both with live and dead loads.
The employment of Steel in modern structures.
Problems connected with Beams and Girders.
Beams of greatest strength for different kinds of
loading. Comparison of graphic and analytic
methods. Girders with parallel flanges connected
by vertical and diagonal bracing. Braced Girders
with oblique or curved flanges, including the crescent
and bow-string Girder and braced arch. Graphic
and analytic modes of finding deflection. Continuous
Girders. Weight of Girders and limiting span.

Estimation of Girder work. Cast Iron Bridges.
Different forms of Suspension Bridges.   Movable
and Swing Bridges.

The following works may be used for reference during the above
courses :—

FOR ALL THREE TERMS.—*Applied Mechanics*, James H. Cotterill
(Macmillan and Co.)

FOR THE FIRST TERM.—*The Steam Engine, and other Prime Movers*,
Rankine. *The Steam Engine,*, Goodeve.

FOR THE SECOND TERM.—*Kinematics of Machinery*, Reuleaux
(translated and edited by Prof. Kennedy).   *Elements of Mechanism*,
Goodeve.

FOR THE THIRD TERM.—*Theory of Strains in Girders*, Stoney
(Longmans, Green, and Co.). *Graphic and Analytic Statics*, Graham
(Crossby, Lockwood, and Co.)

THIRD YEAR.

Monday, Wednesday, and Friday, 12—1.

This course is a more complete treatment of the
subject taken in the second Term of the second
year.

FIRST TERM.—The theory and construction of
various forms of absorption and transmission Dyna-
mometers. The theory and efficiency of Machines
by which muscular effort is converted into work.

The estimation of the amount of rainfall in a
district available for purposes of power, its collection
and supply. The height, extent, and curve of Swell
or Backwater. Reservoirs and Reservoir Sluices.
Motion of water in Conduit Pipes, and loss of energy
by eddies and broken water. Theory of Overshot
and other forms of vertical Water-wheels, and the
formulas involved in the various questions of radius,

crown, width of wheel, number of floats, entrance angle, and effect of pressure, impulse, and centrifugal force of water. Friction of Water-wheels, and their total and effective delivery. Theory of various forms of horizontal Water-wheels, including Impact and Tub Wheels, Tangential Wheels, Jet Turbines, Reaction Wheels; Inward, Parallel, Outward-flow and Screw Turbines. Reciprocating water-pressure Engines, their theoretical and actual efficiency, and the valves and regulators of different kinds employed with them.

The theory of Wind-wheels and Mechanical efficiency of Windmills.

SECOND TERM.—The relative merits of Solid, Liquid, and Gaseous Fuels, and the construction of Furnaces for their combustion. Draught required and formulas for height of Chimney. The conversion of Heat into Work, and the theory of Heat Engines in general. Equations of Energy and Work. The use of Atmospheric Air for purposes of Motive Power, both in the heated and compressed state.

The theory of the Gas Engine: calculations of its efficiency, and the result of recent investigations on the subject.

Generation, properties and use of Steam. Calculation of power and heating surface, construction and testing of boilers, prevention of incrustation and scale, causes of explosions. Calculations for Safety Valves, Feed Pumps, Injectors, and other appendages. The theory of the Steam Engine and its various forms. The study of Indicator Diagrams, and construction of Diagrams of Crank effort.

The relative efficiency of different forms of Governors. The methods adopted for testing the power and efficiency of Prime Movers.

Opportunity will be afforded for taking Indicator Diagrams and other data from Engines at neighbouring works and factories.

Text-book.—*Mechanics of Engineering*, Weisbach (Wiley and Sons, New York).

Works for Reference.—*Fuel and Water*, Schwackhöfer & Browne. *A Treatise on Steam Boilers*, Wilson. *The Steam Engine*, Cotterill. *The Steam Engine and other Prime Movers*, Rankine. Various Papers in Minutes of Proceedings Inst. C. E. (in the *College Library*).

Fee for each course, £7 7s. for three Terms; £5 5s. for two consecutive Terms; £3 3s. for a single Term.

ENGINEERING LABORATORY AND WORKSHOP.

Professor H. S. HELE SHAW.

Demonstrator, WALTER E. KERSLAKE.

ENGINEERING LABORATORY.

The instruction in the Engineering Laboratory is intended to supply that necessary information and experience which it is not, as a rule, possible to acquire in the ordinary routine of Engineering works or offices. With this view an opportunity will be afforded to students of dealing with various instruments of precision, and of gaining a scientific knowledge of the nature, properties, and strength of materials, of the behaviour of fluids in motion, and the laws of Hydraulics; and of the mode of determining the efficiency of Machines and Prime Movers. In addition to this, the simple laws of Mechanics will be verified by means of suitable apparatus.

1. The Laboratory is provided with a powerful Testing Machine, capable of exerting upon the test piece a force of 50 tons. With this piece of apparatus the nature and strength of the various materials.

employed in construction will be examined by means of experiments upon tension, compression, torsion, shearing, bending, deflection, and cross breaking; and the laws of simple beams and girders verified. It is intended to undertake commercial testing with this machine, and students will have an opportunity of taking notes of, and assisting in such work.

2. Apparatus is provided for experiments upon the friction of materials, and specially of lubricants, and upon viscosity and fluid friction.

There is also an Hydraulic tank, by means of which the behaviour of fluids in motion can be examined.

3. At present the Engineering Laboratory is provided with a Gas Engine and Turbine, which supply the power necessary for making dynamo-metrical experiments, and for testing the loss caused in transmitting power. Until it is possible to obtain a Steam Engine and Boiler, by which matters such as the consumption of Fuel and Steam may be experimentally treated. experiments will be made upon certain engines at Works in the city, permission for doing which has kindly been granted.

For the first and perhaps the second Term of the forthcoming Session, it will only be possible to arrange for the admission of students of the third year's Engineering course to work in the Engineering Laboratory. By that time it is hoped that arrangements will have been made which will permit the admission of second year's students.

Fee (eight hours a week), £7 7s. for three Terms; £5 5s. for two Terms; £3 3s. for one Term.

WORKSHOP.

The Workshop is intended to afford, to those who may wish to do so, an opportunity of obtaining a prac-

tical acquaintance with the use of tools and machines. At the same time, it must be understood that such instruction cannot take the place of the six months course in Engineering works, which is part of the scheme of Mechanical Engineering, or of the practical experience which must eventually be acquired in Electrical works by students of Electrical Engineering.

Instruction will be given in the following subjects :—Carpentering and the use of carpentering tools. Filing and fitting. In the use of the forge and smiths' tools, and in the hardening and tempering of steel and the case-hardening of iron. Moulding and casting of gun-metal and other alloys on a small scale. Hand turning. The use of the self-acting lathe for turning, boring, and screw-cutting. The preparation of standard gauges, of plane surfaces, and of cutting tools.

Students will be assisted to construct the apparatus required by them for their own use in the various departments of the college, the work for electrical students being such as galvanometers, switches, Wheatstone bridges, resistance boxes, electric bells and batteries, telephones, microphones, small dynamo-electric machines, and other instruments.

Fee (four hours a week), £4 4s. for three Terms ; £3 3s. for two Terms ; £2 2s. for one Term.

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Fee for the Workshop (four hours a week) and for the Engineering Laboratory (eight hours a week) combined, £10 10s. for three Terms ; £7 7s. for two Terms ; £4 4s. for one Term.

ENGINEERING DESIGN AND DRAWING.

Professor H. S. HELE SHAW.

Lecturer, D. CODRINGTON SELMAN.

Monday, Wednesday, and Friday, 2—4.

FIRST YEAR.

(1.) The preparations of tracings and finished drawings. Drawing to scale and from models, and actual machines and portions of machines.

(2.) Graphical modes of representing results. The working out of simple diagrams of stress in connection with the class in Engineering.

SECOND YEAR.

(1.) The design and drawing of various parts of machines from given data or from actual measurement.

(2.) A course of lectures will be given on Wednesday afternoons, from 3 to 4, by the Professor of Engineering. The following will be the subjects treated :—The strength and behaviour of materials under the action of loads, with practical demonstrations in the Engineering Laboratory by means of the large testing machine. The effect of live loads, and the researches of Wöhler and Spangenberg, and the formulas of Weyrauch, Launhardt, and others, based upon these researches. The strength and form of rivetted joints. The dimensions and strength of bolts, nuts, keys, and cotters. The strength and construction of pipes and cylinders. The theory and practical calculations required in dealing with the transmission of power by various means, such as by shafting; toothed, friction, and screw gearing; belt, rope, and chain gearing. The strength and form

of the constructive elements of machinery, such as cranks, levers, connecting rods, cross-heads, pistons, plummer blocks, brackets, &c. The form and dimensions of valves.

THIRD YEAR.

Wednesday, 2—4 ; Monday and Friday, 2—3.

(1.) Design and drawing of complete machines from given data.

(2.) Two courses of lectures will be given by the Professor of Engineering, as follows :—

Monday, 3—4.

The Theory of the Slide Valve and of Valve Gears.

This course will include a discussion of valve gears, with one or more valves, and with fixed and variable expansion, and will deal with the link motions of Stephenson, Gooch, Allan, Heusinger von Waldegg, Pius Fink, Gonzenbach, Meyer, Polonceau, Joy, Marshall, Corliss, and others.

Friday, 3—4.

The Design of Girders and Framed Structures.

This course will be a further study of the theory of structures treated both graphically and by calculation, as follows :—

Diagrams of Bending Moment and Shearing Stress in beams and girders. Graphic representation of the action of stationary and travelling loads, of the centre of parallel forces and Moment of Inertia. Stress diagrams of braced beams and girders for railway bridges.

Numerical calculations of Bending Moment for fixed and moving loads, the moment of resistance to bending of shearing strains, curvature and deflection .

of beams, and the straining actions in framework. Examples from modern practice of the complete calculations for structures, such as bridges and roofs.

Text-books.—Second Year: *Elements of Machine Design*, Professor W. C. Unwin (Longmans and Co.) Third Year: *Treatise on Valve Gears*, Zeuner (E. and F. N. Spon).

These courses are given during the first and second Terms.

Fee for each year's course, £5 5s. for two Terms; £3 3s. for one Term.

Instruction will also be given on these afternoons, during the first and second Terms, to students of the course on Architecture in Building Construction and Architectural Drawing.

Fee for the course, £5 5s. for two Terms; £3 3s. for one Term.

GEOMETRICAL DRAWING.

Professor H. S. HELE SHAW.

Lecturer, D. CODRINGTON SELMAN.

Tuesday and Thursday, 2—4.

A course of forty lessons in Plane Geometrical Drawing and the application of Descriptive Solid Geometry will be given during the first and second Terms. The course of instruction will include the following subjects :—

Plane Geometry.—The Construction of Scales. The Description of Polygons. The Construction of the Ellipse, Parabola, Hyperbola, and other Curves which are the loci of points under given conditions. The transformation of Areas.

Solid Geometry.—The Representation of Points and Lines in Space, and also of Simple Solids upon a plane surface by Orthographic Projection. Use of Scales of Slope. Penetrations. Developments. Shadows. Isometrical Projection and the Elements of Radial or Perspective Projection.

Text-books.—Angel's *Practical Geometry and Projection* (Collins, Son, and Co.) ; Sydenham Clarke's *Practical Geometry*.

Fee, for two Terms, £4 4s. ; one Term, £3 3s.

SURVEYING.

Professor H. S. HELE SHAW.

Lecturer, D. CODRINGTON SELMAN.

ELEMENTARY COURSE.

Wednesday, 2—5 ; Friday, 2—4.

This course will be given during the third Term. Wednesday afternoon will be devoted to practical instruction in the use of Surveying and Levelling Instruments, the keeping of Field Level Books, the demarcation of Survey points, and, as soon as possible, to *Field Practice* in the neighbourhood. Friday afternoon will be devoted to the theory of Surveying and to the plotting of the Field work.

Text-book.—*Land and Engineering Surveying*, T. Baker (Weale's Series).

Fee, £3 3s.

ADVANCED COURSE.

Tuesday and Thursday, 2—4.

An advanced course will be given during the third Term on the above days in the theory and practice of Surveying and Levelling, including a

discussion of the various methods of Surveying with Chain, Telemeter, Plane Table, Compass, Sextant, and Theodolite; of Levelling operations and Contouring, and the sources of error in Levelling; of Setting out Embankments, Cuttings and Tunnels, and Ranging Curves for Railway work; of Route Surveys by land. Also the correction and adjustment of both Surveying and Levelling Instruments.

An afternoon will be devoted once a fortnight to Field Practice.

Fee, £3 3s.

ARCHITECTURE.

ART AND SCIENCE.

Lecturer, W. EDWARD JONES.

Tuesday and Thursday, 9—10.

ART.

The history and development of Ancient Architectural Art will be fully treated; the finest examples of Egyptian, Asiatic, Greek, and Roman Architecture will be reviewed; and the chief features, details, and ornamentation described.

Byzantine and Romanesque forms of Art will be treated in detail, and the development of Christian Art or Pointed Architecture in North Italy, with descriptions and illustrations of the principal buildings of that district.

The further development of Pointed Architecture of Western Europe, more particularly that of Great Britain, with the main outlines and distinctive features of the Renaissance in Italy, Germany, and France, compared with English Architecture of the present century.

During the Session excursions will be arranged to visit the best examples of Mediæval Architecture in the neighbourhood.

SCIENCE.

Building Construction and Professional Practice.

Descriptions of the various kinds of stone, and of the manufacture of bricks, tiles, drain-pipes, &c.

The design and construction of foundations and supports in stone and brick. Retaining walls. Underpinning. Shoring and needling. Groining. Vaults and arches. Tracery and the wrought stonework of buildings.

Descriptions of the various kinds of timber, with their uses. The construction of timber framing in girders, floors, roofs, &c.

Iron roofs, and fire-proof construction. Heating, lighting, ventilation, and the sanitary arrangements of buildings.

During the Session some of the chief builders' workshops will be visited.

Fee, £5 5s. for three Terms ; £4 4s. for two consecutive Terms ; £3 3s. for the first or second Term singly ; £2 2s. for the third Term.

GEOLOGY.

GENERAL GEOLOGICAL COURSE.

Professor C. LLOYD MORGAN.

Monday, Wednesday, and Friday, 4—5.

This course will be given during the first and second Terms. The lectures will be illustrated by specimens and diagrams. A paper of questions to be worked out will be set from time to time.

SYLLABUS.

I. *Physiography.*—The Avon Basin. Rainfall and its effects. Underground Water. River action. The Ocean : its tides, currents, and waves. Evaporation. Inland Seas and Lakes. The Winds as carriers of water-vapour. Cloud, mist, rain, hail, and snow. Frost. Glaciers and glacial action. Denudation, general and special. Elevation and Subsidence. Volcanoes and Earthquakes.

II. *Physical Geography.*—The Avon Basin ; Contour lines ; Watershed. Distribution of valleys and hills ; of plains and mountains ; of land and sea. Contour lines of the Atlantic. Distribution of oceanic temperature. Climate.

III. *Lithology.*—Rocks of the Avon Basin. The structure and arrangement of rock masses (Petrology) ; the minute structure of rocks (Lithology) ; the lithological units (Mineralogy). The four classes of rocks—sedimentary ; metamorphic ; plutonic ; volcanic. Mineral veins.

IV. *Palæontology.*—The character and distribution of animals and plants, in so far as they bear upon the Geological History of England. The nature of fossils and the processes of fossilization.

V. *Geological Principles.*—Denudation. The formation of stratified deposits. Mechanical agency ; Chemical agency; Vital agency; Volcanic agency. The consolidation and alteration of the rocks. The causes of elevation and subsidence. Mountain ranges. The relations of sedimentary, metamorphic, plutonic, and volcanic rocks to each other. The internal heat of the earth.

VI. *Stratigraphical Geology.*—The geology of the Avon Basin. The Carboniferous system as developed in the Bristol district and elsewhere.

Systems older than the Carboniferous. Systems newer than the Carboniferous. The imperfection of the Geological Record. The lapse of Geological Time. Geological changes of Climate.

VII. *Evolution*.—Of the earth; of its inhabitants; of geological knowledge.

Text-books.—*Text-book of Geology*, Geikie; *Jukes' Manual of Geology; Physical Geology for Students and General Readers*, Green; *Syllabus of Lectures on Geology*, Sollas. References to works treating of special branches of the subject will be given during the lectures.

PRACTICAL WORK.

Facilities will be afforded for the practical study of rocks and fossils.

EXCURSIONS.

Excursions, to illustrate the subjects of the lectures and to gain an insight into the principles of geological surveying, will be made at intervals to places of interest in the neighbourhood.

Fee, £4 4s. for two Terms; £3 3s. for one Term.

Fee for the course on General Geology and Applied Geology combined, £6 6s.

APPLIED GEOLOGY.

Professor C. LLOYD MORGAN.

Monday, Wednesday and Friday, 4—5.

This course will be given during the third Term only, and will consist of about thirty lectures.

SYLLABUS.

Geological and Mineralogical Introduction. The mineral contents of stratified deposits. Silicious, arenaceous and calcareous rocks. Salt deposits.

Iron ores. Coal winning and coal supply. The mineral contents of lodes and veins. The extraction and purification of ores. The microscopic examination of minerals and rocks. Volcanic, Plutonic, and Metamorphic rocks. The alteration and decay of rocks. Building-stones, natural and artificial. Joints, cleavage, faults, &c. Slates and paving stones. Soils. Water supply. The construction of Geological Maps (with Field Practice).

Fee, £3 3s.

Fee for the lectures on General Geology and Applied Geology combined, £6 6s.

MINERALOGY AND LITHOLOGY.

Professor C. LLOYD MORGAN.

Special arrangements can be made with regard to instruction in these subjects.

PALÆONTOLOGY.

Professor C. LLOYD MORGAN.

Special arrangements can be made with regard to instruction in this subject.

GEOLOGICAL LABORATORY.

Professor C. LLOYD MORGAN.

The Geological Laboratory is open daily from 10—4, except on Saturday, when it closes at one o'clock.

A course of practical instruction in the methods of geological research, and on the characters of the

more important minerals and rocks, will be conducted, under the supervision of the Professor.

Opportunities will be given for Field Work.

Fee for the Session, £8 8s.; for each Term, £3 3s.

BIOLOGY.

Professor C. LLOYD MORGAN.

In consequence of the new regulations for the Intermediate Examination in Science of the University of London, by which Botany is raised to co-ordinate importance with Zoology, these two leading divisions of Biology will be treated separately by the Lecturers on Botany and Zoology respectively.

For particulars see pages 63 and 66.

ZOOLOGY.

GENERAL ZOOLOGY COURSE.

Professor C. LLOYD MORGAN.

Monday, Wednesday, and Friday, 2.30—3.30.

The object of this course, which will consist of about thirty lectures, delivered during the first Term, is to afford a general introduction to Zoology, and to supply such a basis of zoological knowledge as may enable those interested in, but without special knowledge of, the science which deals with animal life, to understand and follow with profit the yearly increasing general literature of the subject.

SYLLABUS.

Simple forms of Life. Spontaneous generation. Distinction between Animals and Plants. Division of labour. The structure and mechanism of the common Crayfish. Modifications of a single plan or type. The structure and mechanism of the common Frog. Muscular fibre and its function. Bone levers. Nerves and nerve-centres ; their bony case. Special sense organs, and their modifications. Sight, hearing, smell, taste, touch, &c. The interpretation of the signs. Nourishment. Different modes of feeding. Respiration. Different modes of breathing. The elimination of waste. The life and death of the organism. The vertebrate plan or type. Nature of the modifications. Manner of modification. Variation and inheritance. The ancestors of the horse. Distribution in space and time.

The course will be illustrated by diagrams, preparations, and microscopic objects.

Fee, £3 3s.

ZOOLOGY.

SPECIAL ZOOLOGY COURSE.

Professor C. LLOYD MORGAN.

Tuesday and Thursday, 2.30—5.

The elements of Vertebrate Morphology and Physiology, as exemplified by the Rabbit, the Fowl, and the Frog.

The description of the external form and the nomenclature of the parts of these animals.

The leading resemblances and differences in the plans of structure of the three. The chief features in their osteology, with special reference to the

skull and limbs and the visceral anatomy of each, including the general structure of the brain, the spinal cord and the sense organs.

The histological character of the blood, epidermal and epithelial organs, connective tissues, cartilage, bone, muscle, and nerve in these animals.

The character and mode of formation of their ova and spermatozoa.

The chief stages of the development of the Frog, Fowl and Rabbit. The nature of the placenta in the latter.

The structure and life history of *Astacus, Lumbricus, Helix, Distoma, Hydra, Vorticella* and *Amœba*.

This course is intended to meet the requirements of those who have entered for the Preliminary Scientific (M.B.) or Intermediate Examination in Science at the University of London.

A sum of £1 1s. is charged to each student, to defray the expense of material used.

Text-books.—*Elementary Instruction in Practical Biology* (Huxley and Martin) ; *A Course of Practical Physiology* (Foster and Langley) ; *Zootomy* (T. J. Parker.)

Fee, £5 5s. for three Terms ; £4 4s. for two consecutive Terms ; £3 3s. for the first or second Term singly ; £2 2s. for the third Term.

COMPARATIVE ANATOMY.

Professor C. LLOYD MORGAN.

Tuesday and Thursday, 2.30—5 ; Saturday, 11—12.

This course will be given during the first Term only.

On Tuesday and Thursday the instruction will be the same as that given in Zoology ; on Saturday

the Morphology of the Vertebrata, with special reference to their Osteology, will be studied.

This course is intended to meet the requirements of students preparing for the Fellowship Examination of the Royal College of Surgeons.

Text-books.—*Elementary Instruction in Practical Biology* (Huxley and Martin) ; *The Anatomy of Vertebrate Animals* (Huxley).

Fee, £4 4s.

BIOLOGICAL LABORATORY.

Professor C. LLOYD MORGAN.

The Biological Laboratory is open daily from 10—4, except on Saturday, when it closes at 1 o'clock.

A course of practical instruction in the methods of biological research, and on the structure of the leading animal types, will be conducted under the supervision of the Professor.

A class will be formed to undertake the original investigation of some special subject, or the complete study of some small group of animals.

Arrangements are made for obtaining such specimens as may be required.

Students will find it convenient to provide themselves with a microscope of their own. Good working instruments can now be obtained at comparatively small cost ; but it would be advisable for students to consult the Professor before purchasing, as the value of a microscope depends greatly upon the maker. A fee of 10/- a Term will be charged for the use of a College microscope. Each student is expected to be provided with a set of the necessary dissecting apparatus.

Fee, for the Session, £8 8s.; for each Term, £3 3s.

BOTANY.

Lecturer, ADOLPH LEIPNER.

Monday, 2—3 ; Thursday, 2—4.

SYLLABUS.

Elementary Morphology and Physiology of flowering plants.

The structure and life-history of a Fern, a Moss, Chara, Fucus, Penicillium, Spirogyra, Mucor, Protococcus, Saccheromyces, Bacterium.

This course, which is given during the second and third Terms, covers the entire range of Botanical studies required for the Preliminary Scientific (M.B.) Examination, and the Intermediate Examination in Science of the University of London.

Facilities will also be given to any student (Elementary or Advanced) for practical work in any special department of Botany.

The Botanical Garden, which has been recently formed, attached to the College, contains upwards of 1,000 specimens, illustrating the different orders ; and, being at all times accessible to students, gives every opportunity for illustration and study.

Text-books.—*Text-book of Botany*, by Prantl and Vines; Sachs' *Text-book of Botany ; Elementary Instruction in Practical Biology* (Huxley and Martin). For field-work—Hooker's *Students' Flora of the British Islands*, or Babington's *Manual of English Botany.*

Fee, £4 4s. for two Terms ; £3 3s. for the second Term only ; £2 2s. for the third Term only.

POLITICAL ECONOMY.

Lecturer, R. MARY FRY.

Wednesday and Friday, 12—1.

SYLLABUS.

The scope of Political Economy. National wealth and expenditure. The organisation of industry. Growth of population and capital.

The theory of value. Rent, wages, and prices. The theory of money. Banking. Commercial crises. Foreign trade.

Economic progress, and its influence on the distribution of wealth and on national character. Monopolies. Trades Unions. Co-operation.

The economic functions of government. Taxation. Factory Acts. Education Acts. Poor Laws. Bearing of economic principles on questions of public and private duty.

Text-books.—Marshall's *Economics of Industry* ; Mill's *Political Economy*. The following also may be read :—Cairnes' *Logical Method of Political Economy* ; Walker's *Wages Question* ; Jevons' *On Money*.

Fee, £4 4s. for three Terms; £3 3s. for two consecutive Terms; £2 2s. for any single Term.

LOGIC.

Professor R. FANSHAWE, M.A.

Tuesday and Thursday, 10—11.

This course will be given during the first and second Terms.

FIRST TERM.—DEDUCTIVE LOGIC.

SECOND TERM.—INDUCTIVE LOGIC.

Text-books.—Jevons' *Elementary Lessons in Logic*; Fowler's *Deductive Logic*; Fowler's *Inductive Logic*; Mill's *Logic*.

Fee, £4 4s. for two Terms; £3 3s. for one Term.

MORAL PHILOSOPHY.

Professor R. FANSHAWE, M.A.

Wednesday and Saturday, 10—11.

The Ethics of Descartes, Malebranche, Spinoza, Leibniz, and Kaut.

This course will be given during the first and second Terms.

Fee, £4 4s. for two Terms; £3 3s. for one Term.

MODERN HISTORY.

Professor J. ROWLEY, M.A.

The Professor of Modern History will lecture twice a week during each of the three Terms of the Session. He will also hold two classes in each week. These classes are intended to be supplementary to the lectures; it is sought through them to give students an opportunity of acquainting themselves with particular passages of history as these are described in the works of the best accessible writers on the subject. Examinations may be held from time to time during the Term, in addition to those specified in the Calendar.

The subject for the first and second Terms will be—The History of England from the Accession of the Tudors to the defeat of the Spanish Armada

(1485–1588). This forms the special period for the next Higher Local Examination of the University of Cambridge, and is almost the same as one of the special periods (1399–1603) of those prescribed in the Honour School of Modern History at Oxford (now open to women without the obligation of residence).

The lectures will be given on Tuesdays and Thursdays, from 11 to 12. The classes will be held on Mondays and Wednesdays, from 11 to 12.

Text-book.—Mr. Franck Bright's *History of England.*

Fee, £5 5s. for three Terms; £4 4s. for two consecutive Terms; £3 3s. for either the first or second Term; £2 2s. for the third Term.

ENGLISH HISTORY FOR THE MATRICULATION EXAMINATION OF THE UNIVERSITY OF LONDON.

Professor J. ROWLEY, M.A.

Monday and Wednesday, 9.45—10.45.

An elementary course in the period of English History required for the Matriculation Examination of the University of London will be given during the second and third Terms.

Fee for the course, £4 4s.

ENGLISH LITERATURE.

Professor J. ROWLEY, M.A.

The Professor of English Literature will lecture twice a week during the first and second Terms, and once a week during the third Term of the Session. He will also hold two classes in each week during

all three Terms. In these classes he will read with those of the students who desire to do so the more remarkable literary works produced during the period which forms the subject of his lectures. Examinations may be held occasionally in Term in addition to those specified in the Calendar.

The subject for the Session will be, English Literature from the death of Milton to the death of Swift.

The lectures will be given on Tuesdays and Thursdays, from 12 to 1, and during the third Term on Tuesdays only. The classes will be held on Mondays and Wednesdays, from 12 to 1.

Text-book.—Arnold's *Manual of English Literature.*

Fee, £5 5s. for three Terms; £4 4s. for two consecutive Terms; £3 3s. for either the first or second Term; £1 11s. 6d. for the third Term.

SPECIAL INSTRUCTION IN ENGLISH HISTORY AND ENGLISH LITERATURE.

Professor J. ROWLEY, M.A.

Tuesday and Thursday, 9.45—10.45.

Special instruction, beginning on the first Tuesday in November, and continued during the Session, in the supplementary subjects of Group H, or in the subjects of Group A of the Cambridge Higher Local Examination, or in those of the English Honour Section of the Oxford Examination for Women, will be offered to students attending the ordinary classes in Modern History or English Literature, and to such other students of the College as may satisfy the requirements of the Professor.

Fee for the course, £4 4s.

GREEK.

Professor R. FANSHAWE, M.A.

There will be an Elementary and an Advanced Class in Greek, of which the first will meet on Tuesdays, Thursdays, and Saturdays at 12, and the second on Mondays, Wednesdays, and Fridays at 4.

The authors read will be chosen with reference to the wants of students who present themselves. Provision will be made, as far as circumstances will allow, for candidates for the Examinations for the University of Oxford (now open to women), the Higher Local Examination of the University of Cambridge, and the Examinations of the University of London.

Fee, £5 5s. for three Terms; £4 4s. for two consecutive Terms; £3 3s. for the first or second Term singly; £2 2s. for the third Term.

LATIN.

Professor R. FANSHAWE, M.A.

There will be an Elementary and an Advanced Class in Latin, of which the first will meet on Tuesdays, Thursdays, and Saturdays at 11, and the second on Mondays, Wednesdays, and Fridays at 3.

The authors read will be chosen with reference to the wants of students who present themselves. Provision will be made, as far as circumstances will allow, for candidates for the Examinations for the University of Oxford (now open to women), the Higher Local Examination of the University of Cambridge, and the Examinations of the University of London.

Fee, £5 5s. for three Terms; £4 4s. for two consecutive Terms; £3 3s. for the first or second Term singly; £2 2s. for the third Term.

HEBREW.

Lecturer, BERNHARD HEYMANN.

A class for beginners on Grammar and Construing will be held on Wednesdays and Fridays, from 2.30 to 3.30

Instruction will be given to advanced students on Wednesdays and Fridays, from 3.30 to 4.30. Parts of the Book of Isaiah will be read, and occasional lectures will be given on Grammar and the earlier commentators.

Text-books may be obtained at the Registrar's office.

Fee, £5 5s. for three Terms; £4 4s. for two consecutive Terms; £3 3s. for the first or second Term singly; £2 2s. for the third Term.

FRENCH LANGUAGE AND LITERATURE.

Lecturer, EUGÈNE PELLISSIER, M.A., LL.B., B.Sc.

Instruction will be given in the French Language and Literature every Tuesday, Thursday and Friday. Advanced Class from 2.30 to 3.30; Elementary Class from 3.30 to 4.30.

In the Advanced Class lectures on French Literature from A.D. 1650 to 1700 will be delivered in French every Friday.

Text-books.—Advanced Class: Brachet's *French Grammar* (Hachette's English edition); *The graduated course of translation, Part II., Senior Course*, Cassal and Karcher; La Bruyère, *Les Caractères* (Hachette); Molière, *Le Misanthrope* (Macmillan).

Elementary Class: Brachet's *Elementary French Grammar* (Hachette's English edition); *The graduated course of translation, Part I., Junior Course*, Cassal and Karcher; *Contes par Souvestre* (David Nutt).

Those who wish to enter for the Cambridge Higher Local Examination will be directed in their studies of the books recommended for it, especially Brachet, *Historical French Grammar*, and Geruzez, *Histoire de la Littérature Française.*

Fee, £5 5s. for three Terms ; £4 4s. for two consecutive Terms ; £3 3s. for the first or second Term singly ; £2 2s. for the third Term.

GERMAN LANGUAGE AND LITERATURE.

Lecturer, ADOLPH LEIPNER.

Instruction will be given in the German Language and Literature every Monday, Wednesday and Friday. Elementary Class from 3 to 4 ; Advanced Class from 4 to 5.

In the Advanced Class occasional lectures on some Authors, or a period of German Literature, will be delivered in German.

Text-books.—Advanced Class : Eve's *German Grammar ;* Lange's *German Composition ;* Schiller's *Historische Skizzen* (Clarendon Press Series) ; *Prose Selections from Heine.* by C. Colbeck (Macmillan and Co.).

Elementary Class : *German Studies*, by H. Plate, Part I. (Dresden, Louis Ehlermann) ; Whitney's *German Reader* (Macmillan and Co.).

Those who wish to enter for the Cambridge Higher Local Examination will be directed in their studies of the books recommended, especially : Gostwick and Harrison, *Outlines of German Literature ;* Gelbe, *Deutsche Sprachlehre ;* Vilmar, *Geschichte der deutschen Nationalliteratur ;* Roquette, *Geschichte der deutschen Dichtung.*

Fee, £5 5s. for three Terms ; £4 4s. for two consecutive Terms ; £3 3s. for the first or second Term singly ; £2 2s. for the third Term.

GENERAL TIME TABLE OF DAY CLASSES.

	Monday	Tues-day.	Wednes-day.	Thurs-day.	Friday.	Satur-day.
CHEMISTRY—Inorganic.. (a)	9	—	9	—	9	9
" Organic (f)	—	10	—	10	—	10
" Advanced	—	—	—	—	—	*9
" Laboratory Instruction	10 to 5	10 to 5	10 to 5	10 to 5	10 to 5	10 to 1
" Special (a)	—	3 to 5	—	3 to 5	—	—
MATHEMATICS—Div. I.	12	—	12	—	12	*12
" Div. II.	—	†10	—	†10	—	†10
" Div. III.	—	†11	—	†11	—	†11
THEORETICAL MECHANICS	—	*12	—	*12	—	—
EXPERIMENTAL PHYSICS—						
Elementary	—	†12	—	12	—	—
Intermediate	11	—	11	—	*11	—
Advanced (a)	†2	—	†2	—	—	—
Technical (e)	—	2	2	2	—	—
Laboratory Instruction	10 to 5	10 to 5	10 to 5	10 to 5	10 to 5	—
ENGINEERING—1st year	10	—	10	—	10	—
" 2nd year	—	11	—	11	—	11
" 3rd year (a)	12	—	12	—	12	—
" Laboratory Instruction	} Open daily.					
" Workshop "						
ENGINEERING DESIGN & DRAWING (a)	†2 to 4	—	†2 to 4	—	†2 to 4	—
GEOMETRICAL DRAWING (a)	—	*2 to 4	—	*2 to 4	—	—
SURVEYING—Elementary (e)	—	—	2 to 5	—	2 to 4	—
" Advanced (e)	—	2 to 4	—	2 to 4	—	—
ARCHITECTURE	—	—	9	—	9	—
GEOLOGY—General (a)	4	—	4	—	4	—
" Applied (e)	4	—	4	—	4	—
" Laboratory Instruction	10 to 4	10 to 4	10 to 4	10 to 4	10 to 4	10 to 1
MINERALOGY AND LITHOLOGY (l)	—	—	—	—	—	—
PALÆONTOLOGY (l)	—	—	—	—	—	—
ZOOLOGY—General (b)	2.30	—	2.30	—	2.30	—
" Special (b)	—	†2.30 to 5	—	†2.30 to 5	—	—
COMPARATIVE ANATOMY (b)	—	†2.30 to 5	—	†2.30 to 5	—	†11
BIOLOGY—Laboratory Instruction	10 to 4	10 to 4	10 to 4	10 to 4	10 to 4	10 to 1
BOTANY (c)	†2	—	—	†2 to 4	—	—
POLITICAL ECONOMY	—	—	12	—	12	—
LOGIC (a)	—	10	—	10	—	—
MORAL PHILOSOPHY (a)	—	—	10	—	—	10
MODERN HISTORY	*11	11	*11	11	—	—
ENGLISH LITERATURE (g)	*12	12	*12	12	—	—
ENGLISH HISTORY—Special (h)	9.45	—	9.45	—	—	—
ENGLISH HISTORY AND LITERATURE—Special (k)	—	9.45	—	9.45	—	—
GREEK—Elementary	—	*12	—	*12	—	*12
Advanced	*4	—	*4	—	*4	—
LATIN—Elementary	—	*11	—	*11	—	*11
Advanced	*3	—	*3	—	*3	—
HEBREW—Elementary	—	—	*2.30	—	*2.30	—
Advanced	—	—	3.30	—	†3.30	—
FRENCH—Elementary	—	*3.30	—	*3.30	*3.30	—
Advanced	—	*2 30	—	*2.30	2.30	—
GERMAN—Elementary	*3	—	*3	—	*3	—
Advanced	*4	—	*4	—	*4	—

The instruction in the hours which are marked with * will take the form of class teaching.

The instruction in the hours which are marked with † will in some part take the form of class teaching.

(a) During the first and second Terms ; (b) during the first Term only ; (c) during the second and third Terms only ; (d) during the second Term only ; (e) during the third Term only ; (f) on Tuesdays and Thursdays during the second Term ; on Tuesdays, Thursdays and Saturdays during the third Term ; (g) during the Session, but in the third Term only one lecture a week (on Tuesdays) and classes ; (h) during the second and third Terms, in preparation for the Matriculation Examination of the University of London ; (k) beginning November 4th, in preparation for the Cambridge University Higher Local Examination, and the Oxford University Examination for Women ; (l) by special arrangements.

DEPARTMENT OF ENGINEERING

AND THE

CONSTRUCTIVE PROFESSIONS.

Department of Engineering and the Constructive Professions.

The instruction in this department is designed to afford a thorough scientific education to students intending to become Engineers, or to enter any of the allied professions, and to supplement the ordinary professional training by systematic technical teaching.

The courses for Civil Engineers, Architects and Surveyors are intended to meet the generally acknowledged want of a preparatory training for one or two years before the usual entrance as articled pupil into an office. Pupils are now usually articled for the comparatively short term of three years, and this scheme possesses the advantage of utilising the interval between leaving school and entering the office. These particular courses extend throughout the whole Session; but the Summer Term of each year is specially devoted to subjects which involve field work and enable excursions to be taken to neighbouring works of construction, illustrating the lectures.

It will be found that the detailed courses cover most of the ground of the examinations which are now held by the Royal Institution of British Architects, and to a rather less degree those which qualify for admission as a Student, Associate, or Fellow of the Surveyors' Institution.

The schemes of study for Mechanical and Electric Engineers, which extend over three years, are detailed hereafter.

Although the courses for the several branches of the profession are not obligatory, yet it is strongly recommended that they be taken as hereafter detailed, and a substantial reduction is made in the case of students who take the complete course. Any reasonable change or modification which a student may desire will be made upon application.

The Principal, or Professor Thompson, or Professor Shaw, will be ready to give advice to students intending to join any of the courses.

Attention is specially directed to Regulation (6) of the General Regulations, p. 26, which provides that a report of the attendance of any student will be periodically sent to his parents or guardians, if they require it.

COURSE FOR STUDENTS INTENDING TO BECOME CIVIL ENGINEERS OR SURVEYORS.

The course of Civil Engineering has been arranged to extend over two years, according to the following time table; but special arrangements will be made for students who may deem it advisable to remain for a third year :—

TIME TABLE.

	First Year.		Second Year.	
	First and Second Terms.	Third Term.	First & Second Terms.	Third Term.
SATURDAY.	Chemistry, 9–10. Mathematics, 12–1.	Mathematics, 12–1.	Mathematics, 10–11. Engineering, 11–12.	Mathematics, 10–11. Engineering, 11–12.
FRIDAY.	Chemistry, 9–10. Engineering, 10–11. Mathematics, 12–1. Eng. Drawing, 2–4.	Engineering, 10–11. Mathematics, 12–1. Surveying, 2–4.	Workshop, 10–12. Eng. Drawing, 2–4. Geology, 4–5.	Workshop, 10–12. Geology, 4–5.
THURSDAY.	Theo. Mechanics, 12–1. Workshop, 3–5.	Theo. Mechanics, 12–1. Workshop, 3–5.	Mathematics, 10–11. Engineering, 11–12.	Mathematics, 10–11. Engineering, 11–12. Surveying, 2–4.
WEDNESDAY.	Chemistry, 9–10. Engineering, 10–11. Mathematics, 12–1. Eng. Drawing, 2–4.	Engineering, 10–11. Mathematics, 12–1. Surveying, 2–5.	Workshop, 10–12, Eng. Drawing, 2–4. Geology, 4–5.	Workshop, 10–12. Geology, 4–5.
TUESDAY.	Theo. Mechanics, 12–1. Workshop, 3–5.	Theo. Mechanics, 12–1. Workshop, 3–5.	Mathematics, 10–11. Engineering, 11–12.	Mathematics, 10–11. Engineering, 11–12. Surveying, 2–4.
MONDAY.	Chemistry, 9–10. Engineering, 10–11. Mathematics, 12–1. Eng. Drawing, 2–4.	Engineering, 10–11. Mathematics, 12–1.	Eng. Drawing, 2–4. Geology, 4–5.	Geology, 4–5.

FEES.—The compounded fee for the above courses is 28 guineas for the first year; 27 guineas for the second year.

Students while attending this course are eligible to be enrolled as Students of the Institution of Civil Engineers; and may then compete for the Miller Scholarship (value £40 per annum, tenable for three years) and the Miller prizes, which are awarded for original papers.

The following local Civil Engineers have expressed their approval of the course of instruction given in this Department. They also recommend it as a suitable preparation for persons intending to enter their offices as articled pupils, and in this capacity they will give preference to students of the Civil Engineering Department of the College :—

Mr. FREDERICK ASHMEAD, Local Board of Health, Bristol.
Mr. H. PERCY BOULNOIS, City Surveyor, Exeter.
Mr. FRANCIS FOX, Great Western Railway, Bristol.
Mr. F. B. GIRDLESTONE, Bristol Docks.
Mr. JAMES HENDERSON, Truro.
Mr. INGLIS, Great Western Docks, Plymouth.
Messrs. THOMAS and WILLIAM MORGANS, Bristol.
Mr. CHARLES RICHARDSON, Bristol. Severn Tunnel.
Mr. T. J. SCOONES, Bristol.
Mr. THOMAS WARING, Cardiff.

COURSE FOR STUDENTS INTENDING TO BECOME ARCHITECTS.

This course has been prepared for reasons (already stated) which apply also to Civil Engineering, but it is felt that the increasing use of iron in structures necessitates instruction specially bearing on this subject. A special course of lectures is given on the History of Architecture; and also on the theoretical and practical treatment of the Science of Building.

TIME TABLE.

	First and Second Terms.	Third Term.
MONDAY.	Engineering, 10–11. Mathematics, 12–1. Building Constrm. 2–4.	Engineering, 10–11. Mathematics, 12–1.
TUESDAY.	Architecture, 9–10. Theo. Mechanics. 12–1. Geom. Drawing, 2–4.	Architecture, 9–10. Theo. Mechanics. 12–1.
WEDNESDAY.	Engineering, 10–11. Mathematics, 12–1. Building Constrm. 2–4.	Engineering, 10–11. Mathematics, 12–1. Surveying, 2–5.
THURSDAY.	Architecture, 9–10. Theo. Mechanics. 12–1. Geom. Drawing, 2–4.	Architecture, 9–10. Theo. Mechanics. 12–1.
FRIDAY.	Engineering, 10–11. Mathematics, 12–1. Building Constrn. 2–4.	Engineering, 10–11. Mathematics, 12–1. Surveying, 2–4.
SATURDAY.	Mathematics, 12–1.	Mathematics, 12–1. Arch. Excursion (afternoon).

FEES.—The compounded fee for the above course is £30.

The above course covers most of the ground in which examinations have now to be passed by any individual before he can be admitted as Associate or Fellow of the Royal Institute of British Architects.

The following local Architects give their hearty support to the scheme, to which they attach considerable importance. They are, moreover, prepared to receive students who have passed satisfactorily through this course into their offices as pupils on more favourable terms than those without such preparatory training :—

> Mr. E. W. Barnes.
> Mr. W. L. Bernard.
> Mr. J. Bevan.
> Mr. Stuart Colman.
> Mr. Henry Crisp.
> Mr. E. Henry Edwards.
> Messrs. Foster and Wood.
> Mr. W. Bruce Gingell.
> Mr. Charles F. Hansom.
> Mr. H. C. M. Hirst.
> Mr. W. Edward Jones.
> Mr. Henry Masters.
> Mr. J. C. Moncrieff.
> Messrs. Philip Munro and Son.
> Messrs. Pope and Paul.
> Mr. T. J. Scoones.
> Mr. Josiah Thomas.
> Mr. Vincent W. Voisey.
> Mr. Henry Williams.
> Mr. F. W. Wills.

COURSE OF MECHANICAL ENGINEERING

This course is carried on at the College during six winter months, according to the following scheme :—

TIME TABLE.

	First Year.	Second Year.	Third Year.
SATURDAY.	Chemistry, 9—10. Mathematics, 12—1.	Mathematics, 10—11. Engineering, 11—12.	Mathematics, 11—12.
FRIDAY.	Chemistry, 9—10. Engineering, 10—11. Mathematics, 12—1. Eng. Drawing, 2—4.	Physics, 11—12. Eng. Drawing, 2—4.	Eng. Laboratory, 10—12. Engineering, 12—1. Eng. Drawing, 2—4.
THURSDAY.	Theo. Mechanics. 12—1. Geom. Drawing, 2—4.	Mathematics, 10—11. Engineering, 11—12. Geom. Drawing, 2—4.	Mathematics, 11—12. Geom. Drawing, 2—4.
WEDNESDAY.	Chemistry, 9—10. Engineering, 10—11. Mathematics, 12—1. Eng. Drawing, 2—4.	Physics, 11—12. Eng. Drawing, 2—4.	Eng. Laboratory, 10—12. Engineering, 12—1. Eng. Drawing, 2—4.
TUESDAY.	Theo. Mechanics. 12—1. Geom. Drawing, 2—4.	Mathematics, 10—11. Engineering, 11—12. Geom. Drawing, 2—4.	Mathematics, 11—12. Geom. Drawing, 2—4.
MONDAY.	Chemistry, 9—10. Engineering, 10—11. Mathematics, 12—1. Eng. Drawing, 2—4.	Physics, 11—12. Eng. Drawing, 2—4.	Eng. Laboratory, 10—12. Engineering, 12—1. Eng. Drawing, 2—4.

FEES.—The compounded fee for the above courses is for each year 20 Guineas.

During the six summer months students of this course enter Engineering Works, and in accordance with this scheme the following Manufacturing Engineers in the neighbourhood have consented, at the request of the Council, to receive students of the College into their offices and workshops during the summer months as articled pupils :—

THE BRISTOL WAGON WORKS CO. LIMITED.
Messrs. BUSH and DE SOYRES, Bristol.
Messrs. COX and CO., Shipbuilders, &c., Falmouth.
Messrs. ELLACOTT and SON, Plymouth.
Messrs. FIELDING and PLATT, Atlas Iron Works, Gloucester.
THE ISCA FOUNDRY CO., Newport, Mon.
Messrs. NEWALL and CO., Bristol.
Messrs. SPENCER and GILLETT, Melksham, Wilts.
Messrs. G. K. STOTHERT and CO., Bristol.
Messrs. STOTHERT and PITT, Bath.
THE USKSIDE CO., Newport, Mon.
Messrs. JOHN WATTS and CO., Bristol.
Messrs. WILLOUGHBY BROTHERS, Plymouth.

Engineering students can obtain a statement of the premium required on application to the Registrar and Secretary, and any further information from the respective firms.

Students who have passed through this course are by the new regulations eligible to compete for the Whitworth Scholarships, since these regulations, an abstract of which is given, p. 122, require that any candidate must have worked at least six consecutive months in each of three years in some Engineering Works.

COURSE OF ELECTRIC ENGINEERING.

This course has been arranged for students studying for the profession of Engineering, who wish to include in their professional training some knowledge of Electricity and its technical applications, especially with regard to Electric Lighting and Transmission of Power, Telephones and Telephonic Systems, Telegraphy, Electro-plating, &c. The course includes a number of the subjects of the general Engineering course, together with courses in Electricity and Magnetism, and practical instruction in the Electrical Laboratory.

It should be borne in mind that an Electric Engineer must, in addition to his knowledge of Electricity, have a thorough acquaintance with Practical Engineering. A mere knowledge of electric testing and electric laboratory work is not sufficient to enable a student to enter the profession of an Electric Engineer. All students who enter for this branch are therefore advised to arrange with some firm, either of Mechanical or of Electric Engineers, for a course of training in Engineering Works.

FEES.—The compounded fees for the above courses are :—First year's course, £30 ; second year's course, £28 ; third year's course, £28.

TIME TABLE.

	First Year — First and Second Terms	First Year — Third Term	Second Year — First & Second Terms	Second Year — Third Term	Third Year — First & Second Terms	Third Year — Third Term
SATURDAY.	Chemistry, 9—10. Mathematics, 12—1.	Mathematics, 12—1.	Mathematics, 10—11. Engineering, 11—12.	Mathematics, 10—11.	Mathematics, 11—12.	Mathematics, 11—12.
FRIDAY.	Chemistry, 9—10. Engineering, 10—11. Mathematics, 12—1. Chem. Laboratory, 2—5.	Chem. Laboratory, 10—12. Mathematics, 12—1. Phys. Laboratory, 2—5.	Workshop, 9—11. Physics, 11—12. Eng. Drawing, 2—4.	Physics, 11—12. Elec. Laboratory, 2—5.	Elec. Laboratory, 10—12. Engineering, 12—1. Elec. Laboratory, 2—5.	Elec. Laboratory, 10—5.
THURSDAY.	Physics, 12—1. Geom. Drawing, 2—4.	Physics, 12—1. Workshop, 2—4.	Mathematics, 10—11. Engineering, 11—12. Elec. Laboratory, 2—5.	Mathematics, 10—11. *Tech. Physics, 2—3. Workshop, 3—5.	Mathematics, 11—12. Elec. Laboratory, 2—5.	Mathematics, 11—12. Workshop, 2—4.
WEDNESDAY.	Chemistry, 9—10. Engineering, 10—11. Mathematics, 12—1. Chem. Laboratory, 2—5.	Chem. Laboratory, 10—12. Mathematics, 12—1. Phys. Laboratory, 2—5.	Workshop, 9—11. Physics, 11—12. Eng. Drawing, 2—4.	Physics, 11—12. *Tech. Physics, 2—3. Elec. Laboratory, 2—5.	Elec. Laboratory, 10—12. Engineering, 12—1. Physics, 2—3. Workshop, 3—5.	Elec. Laboratory, 10—5.
TUESDAY.	Physics, 12—1. Geom. Drawing, 2—4.	Physics, 12—1. Workshop, 2—4.	Mathematics, 10—11. Engineering, 11—12. Elec. Laboratory, 2—5.	Mathematics, 10—11. *Tech. Physics, 2—3. Workshop, 3—5.	Mathematics, 11—12. Elec. Laboratory, 2—5.	Mathematics, 11—12. Workshop, 2—4.
MONDAY.	Chemistry, 9—10. Engineering, 10—11. Mathematics, 12—1. Chem. Laboratory, 2—5.	Chem. Laboratory, 10—12. Mathematics, 12—1. Phys. Laboratory, 2—5.	Physics, 11—12. Eng. Drawing, 2—4.	Physics, 11—12. Elec. Laboratory, 2—5.	Elec. Laboratory, 10—12. Engineering, 12—1. Physics, 2—3. Workshop, 3—5.	Elec. Laboratory, 10—5.

* In lieu of Physics.

SESSION 1884-85

EVENING LECTURES.

GENERAL REGULATIONS.

(1.) Each student on admission must sign an undertaking to observe all the regulations affecting students made by the Council of the College for the time being.

(2.) The Registrar and Secretary will attend at his office, for the purpose of admitting students, from 6.45 to 8.15 p.m., from October 7th to October 20th, 1884, January 16th to January 29th, and from April 28th to May 4th, 1885, except on Saturdays.

(3.) The tickets of admission issued by the Registrar and Secretary must be presented to the Professors and Lecturers for insertion of the student's name in the class lists.

(4.) A record will be kept of the attendance of students. A report of the attendance of any student will be periodically sent to his parents or guardians if they require it.

(5.) Disorderly conduct on the part of any student will be reported to the Principal, who will adopt such action thereon as he may deem necessary.

(6.) Every student is required to provide himself with a College Calendar.

The Council reserve to themselves the power of suspending any class, if there are not a sufficient number of entries.

FEES.

The fees are as a rule:—For courses in which two hours of instruction are given in the week, 20/- for three Terms; 15/- for two Terms; 10/- for one Term. Some exceptions to this rule will be found in the statements of fees which are appended to the accounts given further on of the subjects of the several courses.

An entrance fee of 1/- is charged for each course; but all entrance fees for one Session may be compounded for by a single payment of 3/-.

Evening Lectures.

SUBJECTS OF INSTRUCTION.

CHEMISTRY.

Lecturer, SYDNEY YOUNG, D.Sc.

Wednesday and Friday, 8—9.

This course consists of two lectures a week during the first and second Terms. The subject includes the general principles of Chemistry and Chemical Physics, and the Chemistry of the non-metallic Elements. A few lectures at the end of the course will be devoted to the consideration of the Chemistry of the Metals. Special attention will be paid throughout to those products which have a practical application in the arts and manufactures. The lectures will be illustrated with experiments and diagrams. Examinations will be held from time to time during the course.

SYLLABUS.

PRINCIPLES OF CHEMISTRY AND CHEMICAL PHYSICS.—Various kinds of matter. Mixtures, com-

pounds, and elements. Separation of mixtures. Solution, crystallization distillation, dialysis, diffusion. Atomic theory. Molecular theory of gases. Laws of Boyle and Gay-Lussac. Avogadro's hypothesis. Analysis and synthesis of compounds. Laws of combination. Quantivalence. Heat of combination. Methods of determining atomic weight.

THE NON-METALLIC ELEMENTS. — Hydrogen. Chlorine, Bromine, Iodine, and Fluorine. Compounds with Hydrogen. Oxygen, Sulphur, Selenium, and Tellurium. Combustion and Respiration. Compounds with Hydrogen. Water. Compounds of Chlorine group with Oxygen, Sulphur, &c. Acids, Bases, and Salts. Bleaching. Oxides and Oxy-acids of Sulphur, Selenium, and Tellurium. Sulphuric acid manufacture. Nitrogen, Phosphorus, Arsenic, Antimony. Compounds with Hydrogen. Ammonia. Compounds with Chlorine and Oxygen groups. Nitric Acid. Lucifer Matches. Manures. Detection of Arsenic in cases of poisoning. Arsenical Dyes. Boron and its compound. Carbon and Silicon. Compounds with other elements. Firedamp. After-damp. Ventilation. Illumination. Coal gas. Glass and Earthenware. Mortar and Cements. Building materials.

THE METALS.—General properties, physical and chemical; Classification; the special properties and methods of preparation of the more important metals, such as Iron and Copper.

This course covers the subjects prescribed for Matriculation in the University of London.

Text-books.—Roscoe's *Smaller Chemistry;* or Thorpe's *Inorganic Chemistry;* Thorpe's *Chemical Problems*.

Fee, 15/- for two Terms; 10/- for one Term.

TECHNICAL CHEMISTRY.

SPECIAL COURSE.

(WITH THE CO-OPERATION OF THE WORSHIPFUL COMPANY OF CLOTHWORKERS.)

Professor W. RAMSAY, Ph.D.

First and Second Terms.—A course of lectures will be delivered on Tuesday evenings, at 8 o'clock, on the scouring, bleaching, and dyeing of WOOL, SILK, COTTON, LINEN, and JUTE. This course is designed to afford information to those engaged in the manufacture and sale of articles made of the above materials. It will imply no previous knowledge of chemistry; but those who purpose to attend it are recommended to enter the Evening Chemistry Classes during the first Term.

SYLLABUS.

Lecture I.—Preliminary. Nature of chemical compounds. Nature of re-actions. Oxidising, reducing. Sketch of elements of which fibres are formed.

Lecture II.—Sources of Wool, Silk, Linen, Cotton and Jute. Varieties. Difference between animal and vegetable fibres. Structure of fibres. Chemical relations of fibres.

Lecture III.—Chemical relations of wool and silk. Behaviour with re-agents. Means of distinguishing them from each other. Chemical relations of linen, cotton, and jute. Behaviour with re-agents.

Lecture IV.—Scouring wool and silk. Wool pickling.

Lecture V.—Chemistry of bleaching wool and silk. Bleaching cotton, linen, and jute. Continuous process of bleaching. Electrical bleaching. Antichlores.

Lecture VI.—Thickeners, their chemical and mechanical action. Vegetable and animal thickeners. Mineral thickeners.

Lecture VII.—Classification of dyes. Action of mordants. Nature and preparation of mordants.

Lecture VIII.—Chemistry of the indigo-group. Artificial indigo. Commercial valuation of indigo.

Lecture IX.—Preparation of artificial indigo. Methods of application.

Lecture X.—Madder. Root. Artificial alizarine. Garancine. Anthrapurpurine. Behaviour with mordants.

Lecture XI.—Printing with turkey-red.

Lecture XII.—Dyewoods. Principles contained in them. Extracts. Behaviour with mordants.

Lecture XIII.—Cochineal, Lac, Carmine, Lakes, Lichen colours. Litmus, safflower, brown and black colouring matters. Astringents.

Lecture XIV.—Aniline colours. Methods of production.

Lecture XV.—Reds and blues.

Lecture XVI.—Black. Use of vanadium. Electrolytic black.

Lecture XVII.—Azo colours. Naphthalene colours. Resorcene colours.

Lecture XVIII.—Discharging colours.

Lecture XIX.—Process of milling woollen goods. Soaping. Steaming. Action on colours.

Lecture XX.—Detection of dyes on woven goods. Fugitive and permanent dyes. Conclusion.

Fee, 15/- for two Terms; 10/- for one Term.

CHEMICAL EXCURSIONS.

In order that students may have an opportunity of acquiring some knowledge of applied Chemistry, excursions to some of the mines and manufactories of the neighbourhood will occasionally be made. They will be conducted by the Professor or Lecturer. Past or present students of the College desirous of taking part in these excursions are invited to apply to the Professor of Chemistry.

MATHEMATICS.

Lecturer, D. CODRINGTON SELMAN.

Monday and Wednesday, 7—9.

Elementary Mathematics. — Arithmetic, Euclid, Algebra and Trigonometry.

Advanced Mathematics.—Conic Sections, Spherical Trigonometry and Differential Calculus.

Students in these classes may attend either on Mondays or Wednesdays.

Fee for either course, 20/- for three Terms; 15/- for two consecutive Terms; 10/- for one Term.

ELECTRICITY AND MAGNETISM.

Professor SILVANUS P. THOMPSON, D.SC., B.A.

During the first and second Terms a course of twenty lectures will be delivered on Electricity and Magnetism, on Tuesday evenings, from 7 to 8 o'clock. Exercise classes for working problems on the lectures will be held on Tuesday evenings from 8 to 9 o'clock.

SYLLABUS.

Frictional Electricity.—Electrical Machines. Electroscopes. Induction. Leyden Jars and other condensers. Electrometers.

Magnetism.— Magnets, Natural and Artificial. Laws of Magnetic Force. The Compass and the Dipping Needle.

Current Electricity.—The Voltaic Cell. Batteries. Laws of Electromotive Force and of Resistance. Chemical Actions of the Current. Magnetic Actions of the Current. Electromagnets. Heating effects of the Current. Induction Currents.

Telegraphs and Telephones.— Principles of Construction and use of Telegraphic and Telephonic Instruments.

Electric Lighting.— Construction of Dynamo-electric Machines for Generating Electric Currents. Electric Lamps. The Voltaic Arc. Incandescent Lights.

Distribution and Storage of Electric Energy.— Systems of Distribution. Accumulators or Storage Batteries. Electric Motors or Engines. Electric Railways.

Text-book.—S. P. Thompson's *Electricity and Magnetism* (Macmillan and Co.).

Fee, 15/- for two Terms ; 10/- for one Term.

ELECTRICAL LABORATORY.

Professor SILVANUS P. THOMPSON, D.Sc., B.A.

Demonstrator,

Systematic instruction in the Electric Laboratory will be given on Wednesday evenings, from 7 to 9 p.m., by the Professor and his Demonstrator, during the first and second Terms.

There will be two courses : an elementary one for junior students, and an advanced course for those already accustomed to electrical experimenting.

Elementary Laboratory Course. — Construction of simple apparatus. Electroscopes, Leyden Jars, Induction Apparatus, &c. Mode of measuring Quantity and Density of Charge, Insulation and Inductive Capacity. Use of Electric Machines. Management of Voltaic Batteries. Construction and use of Galvanometers. Experiments with Batteries, Induction Coils, Telegraphic and Telephonic Apparatus.

Students attending this course will be taught how to make various pieces of apparatus for themselves, and they will be expected to furnish the materials at their own expense, which will not exceed a few shillings ; such apparatus remaining as their own property.

Advanced Laboratory Course. — Measurement of Resistance, Electromotive Force, &c. Use of Resistance Coils, Wheatstone's Bridge, Galvanometer and Electro-dynamometer. Use of Condensers. Construction and use of Dynamo-electric Machines. Management of Electric Arc Lights and Incandescent Lamps. Measurement of Currents employed in Electric Lighting. Tests of Efficiency of Machinery and Lamps.

Fee, for two Terms, £1 11s. 6d. ; for one Term, £1 1s.

THE SOURCES AND MODES OF APPLICATION OF MOTIVE POWER.

Professor H. S. Hele Shaw.

Friday, 7—8.

A popular course of twenty lectures will be delivered on Friday evenings, from 7 to 8, during the first and second Terms. These lectures will

treat of the sources and modes of application of Motive Power.

The subject will be dealt with so as to meet the wants of a general audience, and only a knowledge of general principles will be assumed.

The course is designed for those who have to deal with prime movers, or may be interested in the subject, and is as follows :—

Syllabus.

1. The sources of motive power.
2. The efficiency of prime movers, and causes of loss of power.
3. The muscular power of men and animals.
4. Tidal power, and its utilization.
5. Wind power, and its mode of application.
6. The nature and amount of water-power, and its use.
7. Hydraulic motors.
8. Fuel.
9. Furnaces and combustion.
10. The theory of heat engines.
11. Hot-air engines.
12. Gas engines.
13. The nature and properties of steam.
14. Steam boilers.
15. The history of the steam engine.
16. Various types of steam engines.
17. The application of motive power on a small scale.
18. The control and regulation of power.
19. The transmission of power.
20. The measurement of power, and testing of prime movers.

As a popular and occasionally historical treat-
ment will be adopted, a class will be held from
8 to 9, in connection with the lectures, for those who
desire to study the subject in more complete detail.
The class work will deal with the principles and
problems involved in the course, and with numerical
examples on these.

Fee, 15/- for two Terms; 10/- for one Term.

WORKSHOP.

Demonstrator, WALTER E. KERSLAKE.

Monday and Wednesday, 7—9.

Instruction will be given in the use of tools and
machines in the Engineering Workshop, on Monday
and Wednesday evenings during the winter and
spring Terms.

Students may attend either on Mondays or
Wednesdays.

Fees, 21/- for two Terms; 15/- for one Term.

GEOMETRICAL DRAWING.

Lecturer, D. CODRINGTON SELMAN.

Thursday, 7—8.

A course of twenty lessons in Practical Plane
and Solid Geometry will be given during the first
and second Terms.

Plane Geometry.—The Construction of Scales.
The Construction of Simple Figures. The Combi-
nation of Figures. The Transformation of Figures
and Areas.

Solid Geometry.—Projections of Points and Lines. Traces of Lines and Surfaces. Projection of Simple Solid Forms. Sections and Penetration of Simple Solids. Developments of Surfaces of Simple Solids, and Drawing of Patterns and Templates for Boilers, &c.

Fee for the course, together with that on Machine Design and Drawing, 15/- for two Terms; 10/- for one Term.

MACHINE DESIGN AND DRAWING.

Lecturer, D. CODRINGTON SELMAN.

Thursday, 8—9.

A course of twenty lessons in Machine Drawing will be given during the first and second Terms.

The course of instruction will deal with the strength and form of Bolts and Nuts, Cotters, Shafting, Couplings, Cranks, Eccentrics, Pistons, Pedestals, Plumber Blocks and Bearings, Toothed and Belt Gearing, Valves of various kinds, Pipes, Pipe Joints, Glands, Air and Force Pumps, and the preparation of Tracings and Working and Finished Drawings of Engines generally.

Students in the Drawing Courses will also be expected to undertake exercises to be worked out during the week. They will be required to provide themselves with the necessary instruments.

Fee for the course, together with that on Geometrical Drawing, 15/- for two Terms; 10/- for one Term.

ARCHITECTURE.

Lecturer, W. EDWARD JONES.

Tuesday and Friday, 7—8.

This course will be delivered during the first and second Terms, and is so arranged that students not desiring a technical acquaintance with the science of Building may attend the Tuesday evening lectures, when the subject will be treated entirely from an Art point of view. Friday evening will be devoted to the consideration of Architecture as a Constructive Science.

DIVISION I.

Tuesday, 7—8.

SYLLABUS.

The combined Art and Science of Building—the influence of the Habits and Occupations of Man, the Climate and Materials obtainable, upon the Architecture of different countries.

Outlines of the History and Progression of Architectural Style, with a description of the various Materials used, and the method of using them, in the construction and ornamentation of ancient work; and the means employed to obtain similar results in modern times.

Introduction to the study of Christian Art or Pointed Architecture of the Middle Ages.

Byzantine and Romanesque, with the Pointed Architecture of Italy and France. The introduction,

development, and perfection of the Architecture of the Middle Ages in Britain will be fully treated.

Drawings of the best examples of Ancient Architecture will be provided for the students to copy.

Excursions will be arranged to visit the best examples of Mediæval Architecture in the neighbourhood, for the purpose of Sketching and Measuring the work.

DIVISION II.

Friday, 7—8.

SYLLABUS.

Introduction to Practical Building or Constructive Science.

Description of the various Materials used, and the method of using them in the construction of ancient work; and the means employed to obtain similar results in modern times.

Building Construction—Stone and Brick Walls, Foundations, Piers, Arches, and Vaults—Carpentry, and the Framing of Timber in Roofs, Floors, and Partitions, &c. The necessary Working Drawings to explain the construction of different parts of Buildings will be provided for the students to copy.

The Design and Construction of Stone Vaults— the Tracery of Windows and other important Wrought Stonework of Buildings—the Ornamental Treatment of Iron, Stone, Wood, and Plaster Work, and other Materials for Architectural purposes.

Fee for each Division, 15/- for two Terms; 10/- for one Term.

GEOLOGY.

Professor C. Lloyd Morgan.

Thursday, 7—9.

A course of twenty lectures will be given during the first and second Terms.

Part I.—Principles of Geology.

1. The rocks around Bristol; introductory and historical. 2. The building of the rocks. 3. The alteration of the rocks. 4. The upheaval of the rocks. 5. Mountains and mountain ranges. 6. The intrusive rocks. 7. Volcanoes and volcanic action. 8. The cooling earth. 9. The sea and marine denudation. 10. Rain and rivers; general and special denudation. 11. The winds: their origin and the work they do. 12. Ice and ice action. 13. Lakes and lake deposits.

Part II.—Chapters from Geological History.

14. The early formations. 15. The "Age of Fishes" and the "Age of Coal." 16. The "Age of Reptiles." 17. The Weald, the Chalk, and the London Clay. 18. The upheaval of the Alps and the old volcanoes of Scotland. 19. The Glacial Epoch. 20. Prehistoric Man in England.

Excursions.

In the summer Term excursions will be made to various localities in the neighbourhood, with the object of studying practically the more important formations.

Fee, 15/- for two Terms; 10/- for one Term.

ZOOLOGY.

Professor C. LLOYD MORGAN.

Monday, 7.30—8.30.

A course of ten lectures in Elementary Zoology will be given during the first Term.

1. The Nature of Living Things. 2. Minute and Simple Animals (Infusoria, &c.). 3. Shell-fish (Mollusca). 4. Crayfish (Crustacea). 5. The Cockroach (Insecta). 6. The Earthworm (Chæto-poda). 7. Parasites. 8. The Frog (Amphibia). 9. The Rabbit (Mammalia). 10. The Animal World.

A short demonstration will sometimes be given at the conclusion of the lecture.

Fee, 10/-.

If there be a sufficient number of entries, a second Elementary course of ten lectures will be given in the second Term. The subject will probably be a fuller and more particular account of the anatomy and physiology of some one form, such as the Crayfish, the Frog, or the Rabbit, with comparisons between that form and others in the same natural group or class.

BOTANY.

Lecturer, ADOLPH LEIPNER.

An elementary course of lectures on Structural and Physiological Botany, and on the classification, technical description and identification of the wild plants of the neighbourhood, will be given every Tuesday, from 7 to 9, during the second and third Terms.

The Botanical Garden recently formed is at all times accessible to the students, and gives every opportunity for illustration and study.

Text-books. —*Text-book of Botany*, by Prantl and Vines ; Hooker's *Students' Flora of the British Islands;* or Babington's *Manual of English Botany.*

Fee, 15/- for two Terms ; 10/- for one Term.

MODERN HISTORY.

Professor J. ROWLEY, M.A.

Tuesday, 7—9.

There will be one lecture and one class every week during the first and second Terms. The subject for the next Session will be the Career of Napoleon Bonaparte, and his ascendancy in Europe (1792—1815).

There will be an examination at the end of the second Term.

Text-book.—Fyffe's *Modern Europe.*

Fee, 15/- for two Terms ; 10/- for one Term.

ENGLISH LITERATURE.

Professor J. ROWLEY, M.A.

Wednesday, 7—9.

There will be one lecture and one class every week during the first and second Terms. The subject for the next Session will be English Literature,

from the birth of Spencer to the death of Fletcher (1558—1625), which is the special period prescribed for the Literature part of Group A in the Cambridge University Higher Local Examination.

The selected books of this Examination will also be among those read at class.

There will be an examination at the end of the second Term.

Text-book.—Arnold's *Manual of English Literature.*

Fee, 15/- for two Terms ; 10/- for one Term.

GREEK.

Professor R. FANSHAWE, M.A.

Monday, Wednesday, and Friday, 7—8.

The work of these classes will be arranged in three divisions, Elementary (Wednesday), Middle (Friday), and Advanced (Monday) ; in each of which instruction will be given in Translation, Grammar and Composition. The authors to be read will be chosen in reference to the wants of the students who present themselves, provision being made, as far as circumstances allow, for candidates for the Oxford University Examinations (now open to women), the Cambridge Higher Local Examination, and the London University Examinations. Students are entitled to attend *any two* divisions for a single fee.

Fee, 20/- for three Terms ; 15/- for two Terms ; 10/- for one Term.

LATIN.

Professor R. FANSHAWE, M.A.

Monday, Wednesday and Friday, 8—9.

The same arrangements will be observed as in the Greek Classes. The Elementary Class will be held on Wednesdays, the Middle Class on Fridays, and the Advanced Class on Mondays.

Fee, 20/- for three Terms ; 15/- for two Terms ; 10/- for one Term.

FRENCH LANGUAGE.

Lecturer, EUGÈNE PELLISSIER, M.A., LL.B., B.Sc.

ELEMENTARY CLASS FOR MEN.—Monday, 7—9.

Accidence (Brachet's *Elementary French Grammar*). Exercises and Supplementary Exercises on Brachet's *Elementary French Grammar* (Hachette's edition). Voltaire, *Charles XII.* (Hachette's edition).

ADVANCED CLASS FOR MEN.—Thursday, 7—9.

Accidence and Syntax (Brachet's *Elementary French Grammar*). *The graduated course of translation, Part I., Junior Course*, Cassal and Karcher. Hachette's *Modern French Authors, Vol. I.*

Lecturer, A. D'OURSY, B.A.

ELEMENTARY CLASS FOR WOMEN.—Friday, 7—9.

1.—Exercises in Chardenal's *Standard French Primer*. Practice in letter writing.

2.—Translation in Chardenal's *French Reader*.

3.—Grammar. Accidence. Regular and most of the irregular verbs.

4.—Practice in French conversation.

ADVANCED CLASS FOR WOMEN.—Tuesday, 7—9.

1.—Translation from French into English of *French Classics, Vol. V.*, G. Masson. (Clarendon Press, Oxford.)

2.—*French Composition* by Kastner (Hachette's edition). Accidence and Syntax—d'Oursy's *Grammar*. Practice in letter writing.

3.—Lectures on French Literature on the period set for the Cambridge Higher Local Examination. Students preparing for this examination require the following text-books :—

Dictionnaire Etymologique (Brachet); *Histoire de la Litérature Française* (E. Geruzez); *Historical Grammar of the French Language* (Brachet).

Fee, 20/- for three Terms; 15/- for two Terms; 10/- for one Term.

GERMAN LANGUAGE.

Lecturer, ADOLPH LEIPNER.

ELEMENTARY CLASS.—Wednesday and Friday, 7—8.

Otto's *Conversational German Grammar.*

ADVANCED CLASS.—Wednesday and Friday, 8—9.

Eve's German Grammar; Lange's *German Composition* (Clarendon Press Series); Hoffmann's *Meister Martin der Küfer und seine Gesellen.*

Fee, 20/- for three Terms; 15/- for two Terms; 10/- for one Term.

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GENERAL TIME TABLE OF EVENING CLASSES.

	Monday	Tues-day.	Wednes-day.	Thurs-day.	Friday.
CHEMISTRY .. .. (a)	—	—	8	—	8
" Technical .. .. .. (a)	—	8	—	—	—
MATHEMATICS .. .. (d)	*7 to 9	—	*7 to 9	—	—
ELECTRICITY AND MAGNETISM .. (a)	—	7 & *8	—	—	—
Electrical Laboratory .. .. (a)	—	—	7 to 9	—	—
MOTIVE POWER .. .. (a)	—	—	—	—	7 & *8
Workshop Instruction .. (a) (d)	7 to 9	—	7 to 9	—	—
GEOMETRICAL AND MACHINE } DRAWING .. .. (a)	—	—	—	*7 to 9	—
ARCHITECTURE .. .. (a)	—	7	—	—	7
GEOLOGY .. .. (a)	—	—	—	†7 to 9	—
ZOOLOGY .. .. (b)	7.30	—	—	—	—
BOTANY .. .. (c)	—	†7 to 9	—	—	—
MODERN HISTORY .. .. .. (a)	—	7 & *8	—	—	—
ENGLISH LITERATURE .. .. .. (a)	—	—	7 & *8	—	—
GREEK— Elementary	—	—	*7	—	—
Middle	—	—	—	—	*7
Advanced	*7	—	—	—	—
LATIN— Elementary	—	—	*8	—	—
Middle	—	—	—	—	*8
Advanced	*8	—	—	—	—
FRENCH— (Men) Elementary	*7 to 9	—	—	—	—
" Advanced	—	—	—	*7 to 9	—
(Women) Elementary	—	—	—	—	*7 to 9
" Advanced	—	*7 to 9	—	—	—
GERMAN— Elementary	—	—	*7	—	*7
Advanced	—	—	*8	—	*8

The instruction in the hours marked with * will take the form of class teaching.
The instruction in the hours marked with † will in some part take the form of class teaching.
(a) During the first and second Terms ; (b) during the first Term only ; (c) during the second and third Terms only ; (d) Students in this class may attend either on Mondays or Wednesdays.

UNIVERSITY COLLEGE DISTRICT LECTURES.

Short courses of lectures, or single lectures, for the people, will probably be delivered in the city during the Session.

UNIVERSITY COLLEGE DISTRICT CLASSES.

In addition to the Evening Courses held at the College, classes in various subjects have been instituted in central or outlying parts of the city. These classes have been formed more especially for the benefit of those belonging to the wage-earning and industrial classes, and the admission fees have been fixed accordingly at low sums. They are held at present at the British Schools, Redcross Street, and at the British Schools, Bedminster, and have been largely attended. Further information with regard to these classes may be obtained of the Registrar.

CHEMICAL PROFESSORSHIP.

The Professorship of Chemistry is at present endowed by an annual contribution from the Worshipful the Clothworkers' Company of London.

ANCHOR PROFESSORSHIP.

The Professorship of Engineering is at present partially endowed by an annual contribution from the Anchor Society of Bristol.

CONTRIBUTION FROM BALLIOL COLLEGE, OXFORD.

A sum of £250 or upwards is annually received from Balliol College, Oxford, in support of the College.

ANNUAL SUBSCRIBERS TO SUSTENTATION FUND.

	£	s.	d.
Dixon, Joshua	25	0	0
Adams, R. and H.	15	15	0
Arrowsmith, James W.	10	10	0
Baker, William, and Sons	10	10	0
Baker, W. Mills	10	10	0
Baker, W. Proctor	10	10	0
Barnett and Gilmore	10	10	0
Bristol Wagon Works Company	10	10	0
Budd, F. N.	10	10	0
Budgett, James S.	10	10	0
Budgett, Samuel	10	10	0
Budgett, W. H.	10	10	0
Butler, William	10	10	0
Castle, Michael	10	10	0
Cordeux, Frederick	10	10	0
Cordeux, John, Sons and Were	10	10	0
Dean of Bristol, The	10	10	0
Edwards, G. W.	10	10	0
Evans, P. and S.	10	10	0
Fox, F. F.	10	10	0
Fry, Abbot, Pope, and Brown	10	10	0
Fry, Albert	10	10	0
Fry, Francis J.	10	10	0
Fry, Lewis, M.P.	10	10	0
George, W. E.	10	10	0
Gotch, Rev. Dr. F. W.	10	10	0
Harvey, John, and Sons	10	10	0
Hosegood, Obed	10	10	0
Hunt, Hodson, and Bobbett	10	10	0
James and Pierce	10	10	0
Jones and Nash	10	10	0
King, Percy L.	10	10	0
Llewellins and James	10	10	0
Lysaght, John	10	10	0
May and Hassall	10	10	0
Mayor of Bristol, The (J. D. Weston)	10	10	0
Macliver, P. S., M.P.	10	10	0

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Morley, Samuel, M.P.	...	...	...	...	...	10	10	0
Netham Chemical Company		...	...	...	...	10	10	0
Pass, Alfred C.	...	...	...	...	...	10	10	0
Phillips, Augustus	...	...	...	...	...	10	10	0
Prankerd, P. D.	...	...	...	...	...	10	10	0
Proctor, C. W. Cope	...	...	...	...	...	10	10	0
Robinson, E. S.	...	...	...	...	...	10	10	0
Shipley, Alfred	...	...	...	...	...	10	10	0
Smith, William	...	...	...	...	...	10	10	0
Sommerville, W.	...	...	...	...	...	10	10	0
Thomas, Charles	...	...	...	...	...	10	10	0
Thomas, Herbert	...	...	...	...	...	10	10	0
Tothill, William	...	...	...	...	...	10	10	0
Tuckett, F. F.	...	...	...	...	...	10	10	0
Wathen, Charles	...	...	...	...	...	10	10	0
Wills, Edward P.	...	...	...	...	...	10	10	0
Wills, Frederick	...	...	...	...	...	10	10	0
Wills, George	...	...	...	...	...	10	10	0
Wills, H. O.	...	...	...	...	...	10	10	0
Wills, W. H., M.P.	...	...	...	...	...	10	10	0
Wilson, Rev. J. M.	...	...	...	...	...	10	10	0
Worsley, P. J.	...	...	...	...	...	10	10	0
Fry, J. S.	...	...	...	...	...	10	0	0
Garnett, Mrs.	...	...	...	...	...	10	0	0
Hill, Charles, and Sons	...	...	...	...	...	10	0	0
Jolly and Sons	...	...	...	...	...	10	0	0
Wethered, Henry	...	...	...	...	...	10	0	0
Bennett, C. T.	...	...	...	...	...	5	5	0
Budgett, James, and Branth	...	...	...	...	5	5	0
Chandler and Mawer	...	...	...	...	...	5	5	0
Clarke, E. G.	...	...	...	...	...	5	5	0
Cross, F. Richardson	...	...	...	...	...	5	5	0
Cruddas, C. J.	...	...	...	...	...	5	5	0
Dobson, N. C.	...	...	...	...	...	5	5	0
Fargus, H. R., and Co.	...	...	...	...	...	5	5	0
Fox, Dr. E. Long	...	...	...	...	...	5	5	0
Giles, Schacht, and Co.	...	...	...	...	..	5	5	0
Godwin, Warren, and Co.		...	...	...	...	5	5	0
Gotch, Miss	...	...	...	...	...	5	5	0
Hall, John, and Sons	...	...	...	...	...	5	5	0
Herapath, A. Newton	...	...	...	...	...	5	5	0
Jose, T. P., and Sons	...	...	...	...	...	5	5	0
Lawson, Phillips, and Billings	...	...	...	...	5	5	0
Leonard, Miss	...	...	...	...	...	5	5	0
Leonard, Miss K.	...	...	...	...	...	5	5	0
Lindrea and Co.	...	...	...	...	...	5	5	0
Marshall, Alfred	...	...	...	...	...	5	5	0
Meade-King and Bigg	...	...	...	...	...	5	5	0
Price, J. and C., and Brothers	...	...	...	...	5	5	0
Salmon, E. Everard	...	...	...	...	...	5	5	0
Smith, Mrs. William	...	...	...	...	...	5	5	0
Tinn, Joseph	...	...	...	...	...	5	5	0
Townsend, Charles	...	...	...	...	...	5	5	0

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Wansey, A. H.	...	...	...	...	...	5	5	0
Waterman and Co.	...	...	...	...	..	5	5	0
Aiken, J. Chetwood	...	...	...	...	...	5	0	0
Beddoe, Dr. John	...	...	...	...	...	5	0	0
Colfox, William	...	...	...	...	...	5	0	0
Fowler, Mrs. William	...	...	...	...	...	5	0	0
Gardiner, Alfred, and Sons		...	...	...	...	5	0	0
Girdlestone, Rev. Canon	..	...	...	...	...	5	0	0
Hallett, Mrs. Ashworth	...	...	...	...	...	5	0	0
Northam, T. G.	...	...	...	...	...	5	0	0
Stevens, Mrs. Yates	...	...	...	...	...	5	0	0
Swayne, S. H.	...	...	...	...	...	5	0	0
Taylor and Low Brothers	...	...	...	...	...	5	0	0
Wills, Samuel, and Co.	...	...	...	...	...	5	0	0
Grace, J. and H.	...	..	...	...	...	3	3	0
Ireland, J. C. Clayfield	...	...	...	...	...	3	3	0
Spencer, Dr. W. H.	...	...	...	...	...	3	3	0
Stephens, Gundry	...	...	...	...	...	3	3	0
Sturge, William	...	...	...	...	...	3	3	0
Addiscot, Henry	...	...	...	...	...	2	2	0
Alcock, Captain	...	...	...	...	...	2	2	0
Ball, Miss	...	...	...	...	...	2	2	0
Beddoe, Mrs.	...	...	...	...	...	2	2	0
Bright, Miss	...	...	...	...	...	2	2	0
Charleton, Mrs. R.	...	...	...	...	...	2	2	0
Clark and Harrison	...	...	...	...	...	2	2	0
Clarke and Sons	...	...	...	...	...	2	2	0
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Cowlin, W. B., and Son	...	...	...	...	...	2	2	0
Cox, Alfred	...	...	...	...	...	2	2	0
Danger and Cartwright	...	...	...	...	...	2	2	0
Evans, Mrs. J. L.	...	...	...	...	...	2	2	0
Fox, Mrs. Joseph H.	...	...	...	...	...	2	2	0
Fry, Miss	...	...	...	...	...	2	2	0
Fry, Miss E. W.	...	...	...	..	...	2	2	0
Harsant, W. H.	...	...	...	...	...	2	2	0
Headford, John, and Co.	...	...	...	...	...	2	2	0
Hooper, Miss	...	...	...	...	...	2	2	0
Laverton and Co.	...	...	...	...	...	2	2	0
Lewis and Sons	...	...	...	...	...	2	2	0
M. S. F., per Miss Elliot	...	...	...	...	...	2	2	0
Parson, T. C.	...	...	...	...	...	2	2	0
Perry, John F.	...	...	...	...	...	2	2	0
Pottow, John	...	...	...	...	...	2	2	0
Prankerd, Mrs.	...	...	...	...	...	2	2	0
Reynolds, Lieut.-Colonel	...	...	...	...	...	2	2	0
Robinson, Edward	...	...	...	...	...	2	2	0
Robinson, Mrs. A.	...	...	...	...	...	2	2	0
Savile, Mrs.	...	...	...	...	...	2	2	0
Sibly and Dickinson	...	...	...	...	...	2	2	0
Steadman, Henry J.	...	...	...	...	...	2	2	0
Tanner, Samuel	...	...	...	...	...	2	2	0
Thomas, Mrs. George	...	...	...	...	...	2	2	0

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Tothill, Miss	...	...	...	...	...	2	2	0
Townsend, Frank	...	...	...	...	...	2	2	0
Venning, Miss	...	...	...	...	...	2	2	0
Wayte, Rev. S. W.	...	...	...	...	...	2	2	0
Whitwill, Mark	...	...	...	...	...	2	2	0
Whitwill, Mrs. Mark	...	...	...	...	...	2	2	0
Wills, Mrs. Frederick	...	...	...	...	...	2	2	0
Cave, Mrs.	...	...	...	...	...	2	0	0
Fry, Lewis G.	...	...	...	...	...	2	0	0
Austin, E., and Son	...	...	...	...	...	1	1	0
Baker, Mrs. Proctor	...	...	...	...	...	1	1	0
Baker, Hiatt C.	...	...	...	...	...	1	1	0
Baker, J., and Son	...	...	...	...	...	1	1	0
Barnett, Mrs. Gilmore	...	...	...	...	...	1	1	0
Brittan, Mrs. A.	...	...	...	...	...	1	1	0
Budgett, Miss C. E.	...	...	...	...	...	1	1	0
Budgett, S. Arnold	...	...	...	...	...	1	1	0
Chapple, Allen, and Co.	...	...	...	...	...	1	1	0
Chappell, Samuel	...	...	...	...	...	1	1	0
Chilton, G. H. D.	...	...	...	...	...	1	1	0
Chilton, Mrs.	...	...	...	...	...	1	1	0
Daniel, Henry	...	...	...	...	..	1	1	0
Daniell, J. L.	...	...	...	...	...	1	1	0
Dunbar, Dr. Eliza W.	...	...	...	...	...	1	1	0
Dymond, Mrs.	...	...	...	...	...	1	1	0
Edwards, Arthur M.	...	...	...	...	...	1	1	0
Edwards, Miss Laura E.	...	...	...	...	...	1	1	0
Elliot, Miss	...	...	...	...	...	1	1	0
Fawn, James, and Son	...	...	...	...	...	1	1	0
Friend, A, per Mrs. J. N. C. Pope			...	...	...	1	1	0
Fripp, Steuart	...	...	...	...	...	1	1	0
Fry, Albert M.	...	...	...	...	...	1	1	0
Fry, John D.	...	...	...	...	...	1	1	0
Fry, Mrs. Albert	...	...	...	...	...	1	1	0
George, Mrs. Edward	...	...	...	...	...	1	1	0
George, Mrs. W. E.	...	...	...	...	...	1	1	0
Gilmore, Mrs.	...	...	...	...	...	1	1	0
Gotch, Francis	...	...	...	...	...	1	1	0
Greenslade, Miss	...	...	...	...	...	1	1	0
Hall, Mrs. J. W.	...	...	...	...	...	1	1	0
Harvey, Mrs. E. A.	...	...	...	...	...	1	1	0
Hawkes, W. H.	...	...	...	...	...	1	1	0
Jeffery and Hucker	...	...	...	...	...	1	1	0
Lloyd, Mrs. W. Reynolds	...	...	...	...	...	1	1	0
Lockley, J. H.	...	...	...	...	...	1	1	0
Low, Mrs. Hoskins	...	...	...	...	...	1	1	0
May, G. B.	...	...	...	...	...	1	1	0
Miles, Mrs.	...	...	...	...	...	1	1	0
Morgan, Frederick	...	...	...	...	...	1	1	0
Napier, Miss	...	...	...	...	...	1	1	0
Nicholson, Dr. T. D.	...	...	...	...	...	1	1	0
O'Brien, Mrs.	...	...	...	...	...	1	1	0
Pope, Mrs. J. N. C.	...	...	...	...	...	1	1	0

						£	s.	d.
Price and Parker	...	...	...	...	...	1	1	0
Randall, Mrs. R. W.	...	...	...	...	...	1	1	0
Robinson, Alfred R.	...	...	...	...	...	1	1	0
Stoddart, F. Wallis	...	...	...	...	...	1	1	0
Sturge, Misses C. and M.	...	...	...	...	...	1	1	0
Sykes, Miss M. A.	...	...	...	...	...	1	1	0
Sykes, Mrs.	...	...	...	...	...	1	1	0
Tyndall, Miss	...	...	...	...	...	1	1	0
Ward, Miss	..	...	...	..	...	1	1	0
Wills, Mrs. George A.	...	...	...	...	...	1	1	0
Winkworth, Miss A. E.	...	...	...	...	...	1	1	0
Worrall, Miss	...	...	...	...	...	1	1	0
Yeates, Miss	...	...	...	...	...	1	1	0
Young and Neilson	...	...	...	...	...	1	1	0
Carslake, Mrs.	...	...	...	...	...	1	0	0
Ivens, C. F.	...	...	...	...	...	1	0	0
Rawson, Miss Isabel	...	...	...	...	...	1	0	0
Spiller, Miss Kate	...	...	...	...	...	1	0	0
Baynes, Ernest S.	...	...	...	...	...	0	10	6
Baynes, Miss Amy S.	...	..	.	...	...	0	10	6
Cocks, Miss E. A.	...	...	...	...	...	0	10	6
Grundy, H.	...	...	...	...	...	0	10	6
Hurn, J.	...	...	...	...	...	0	10	6
Leon, J. A.	...	...	...	...	...	0	10	6
Stroud, Henry	...	...	...	...	...	0	10	6
Stroud, William	...	...	...	...	...	0	10	6
Wansey, Mrs.	...	...	...	...	...	0	10	6
Baker, Miss	...	...	...	...	...	0	10	0
Fry, Miss R. Mary	...	...	...	...	...	0	10	0
Garnett, Miss	...	...	...	...	...	0	10	0
Leppington, Miss	...	...	...	...	...	0	10	0
Leppington, Miss B.	...	...	...	...	...	0	10	0
Sturge, Misses	...	...	...	...	...	0	10	0
Wills, Miss	...	...	...	...	...	0	10	0
Wills, Miss A.	...	...	...	...	...	0	10	0
Wedmore, Miss	...	...	...	...	...	0	10	0
Wedmore, Miss C.	...	...	...	...	...	0	10	0
Wolff, Miss	...	...	...	...	...	0	10	0

SUBSCRIBERS FOR SESSION 1883—84.

						£	s.	d.
Ryland, C. J.	...	...	...	...	...	21	0	0
Leonard, George H.	...	...	...	...	...	10	10	0
Symes and Co.	...	...	...	...	...	10	10	0
Brittan, Alfred	...	...	...	...	...	10	0	0
Brittan, Mrs. H.	...	...	...	...	...	5	5	0
Pease, Thomas	...	...	...	...	...	5	0	0
Alleyne, Miss S. F.	...	...	...	...	...	4	0	0
Gwynn, Mrs. H.	...	...	...	...	...	2	2	0
Leonard, Everett	...	...	...	...	...	1	1	0
Rossall, J. H.	...	...	...	...	...	1	1	0
Prichard, Miss M.	...	...	...	...	...	0	10	6

GIFTS.

The following Gifts have been received during the Session, 1883-84 :—

LIBRARY.

A donation of books, to the value of £50, from the University of Oxford.

A donation of various works from Messrs. Macmillan and Co.

A donation of books from the Worshipful the Clothworkers' Company of London.

Transactions and Proceedings of the Cambridge Philosophical Society.

Minutes of Proceedings of the Institution of Civil Engineers.

Transactions of the Society of Engineers.

A donation of books from Messrs. Williams and Norgate.

A donation of books from Mrs. Edward Berry.

A donation of books from Mr. Arthur W. Metcalfe.

———

An additional lathe for the Engineering Department has been received from Mr. Albert Fry; a drilling machine from Prof. Hele Shaw; and samples and specimens from the Delta Lead Company.

———

Donations of apparatus and material have been received for the Botanical Garden from Messrs. Thomas Daniel and Son, Mr. William Greenslade, and Mr. Lewis Rogers.

FORM OF BEQUEST.

I give to University College, Bristol, the sum of £ to be paid out of such part of my personal estate as I can lawfully charge with the payment of legacies to charitable uses, and to be paid free of legacy duty, within from my death, to the Treasurer, for the time being, of the said College, whose receipt shall be a sufficient discharge for the same.

UNIVERSITY OF OXFORD.

Attention is directed to a Statute of the University of Oxford, recently passed, by which women who have passed the First Examination for Women, or any of the Examinations specified in the Regulations of the Oxford University Examinations for Women as equivalent thereto, may, without the obligation of residence, offer themselves for the Honour Examinations of the University in Greek and Latin, in Mathematics, in Modern History, or in Natural Science. Candidates who so offer themselves will be examined by the University Moderators or Public Examiners (as the case may be) in the same Papers and at the same time, and will be classed according to the same standard as members of the University, and may receive Certificates to that effect. Full particulars as to these Examinations will be found in *The Examination Statutes and Regulations* (Clarendon Press), copies of which (price 1/- each) can be obtained from the Secretary to the Delegacy of Local Examinations, Clarendon Building, Oxford, from whom information as to these and the other Examinations for Women of the University of Oxford can also be obtained.

UNIVERSITY OF LONDON.

ABSTRACT OF THE REGULATIONS FOR DEGREES IN ARTS AND SCIENCE.

MATRICULATION.

Second Monday in January and third Monday in June. Candidates must have completed their sixteenth year. Fee, £2.

SUBJECTS.—1. Latin ; 2. Any two of the following languages :—(a) Greek, (b) French, (c) German, (d) either Sanskrit or Arabic ; 3. The English Language, English History, and Modern Geography ; 4. Mathematics ; 5. Natural Philosophy ; 6. Chemistry.

The June Matriculation Examination is held in University College, Bristol. Local fee, £1.

INTERMEDIATE EXAMINATION IN ARTS.

Third Monday in July. Fee, £5.

SUBJECTS.—Mathematics ; Classics ; the Latin Language ; History of Rome to the Death of Augustus ; Greek ; the English Language, Literature and History ; the French or the German Language.

BACHELOR OF ARTS EXAMINATION.

Fourth Monday in October. Fee, £5.

SUBJECTS.—The following Branches of Knowledge ; Branches I., II. and III. being compulsory, but an option being allowed between Branch IV. and Branch V. :—I. Latin, with Roman History ; II. Greek, with Grecian History ; III. *One* of the following Languages : — English, French, German, Italian, Arabic, Sanskrit ; IV. Either *Pure* or *Mixed* Mathematics ; V. Mental and Moral Science.

MASTER OF ARTS EXAMINATION.

First Monday in June. Fee, £10.

SUBJECTS.—One or more of the following Branches of Knowledge :—I. Classics ; II. Mathematics and Natural Philosophy; III. Mental and Moral Science, Political Philosophy, History of Philosophy, Political Economy.

INTERMEDIATE LITERATURE EXAMINATION.

First Monday in June. Fee, £10.

SUBJECTS.—1. The Greek and Latin Classic Authors ; 2. Prose Composition in Greek, Latin and English ; 3. Ancient History, and the History of Europe to the end of the Eighteenth Century.

DOCTOR OF LITERATURE EXAMINATION.

First Tuesday in December. Fee, £10. Candidates who have taken the Degree of M.A. in Branch II. or Branch III. are exempt from payment of the fee.

SUBJECTS.—1. English Language, Literature and History ; and any two of the following subjects, one of which must be either French or German :— 2. French Language and Literature ; 3. German Language and Literature; 4. Anglo-Saxon Language and Literature, with Icelandic Language and Literature ; 5. Sanskrit Language and Literature ; 6. Arabic Language and Literature ; 7. Hebrew Language and Literature, with Syriac Language and Literature.

INTERMEDITE EXAMINATION IN SCIENCE.

Third Monday in July. Fee, £5.

SUBJECTS.—Pure Mathematics ; Mixed Mathematics; Inorganic Chemistry; Experimental Physics; General Biology.

Bachelor of Science Examination.

Third Monday in October.   Fee, £5.

SUBJECTS.—*Any three* of the nine following subjects :—I. Pure Mathematics ; II. Mixed Mathematics ; III. Experimental Physics ; IV. Chemistry ; V. Botany; VI. Zoology; VII. Animal Physiology; VIII. Physical Geography and Geology; IX. Mental and Moral Science.

Doctor of Science Examination.

Within the first twenty-one days of June.   Fee, £10.

SUBJECTS. — One or more of the following Branches of Knowledge :—

PHYSICAL SCIENCE.—I. Pure Mathematics; II. Mechanical Science; III. Astronomy; IV. Inorganic Chemistry ; V. Organic Chemistry; VI. Electricity; VII. Magnetism ; VIII. Physical Optics ; Heat ; Acoustics.

BIOLOGICAL SCIENCE.—IX. Animal Physiology ; X. Comparative Anatomy; XI. Zoology; XII. Vegetable Physiology ; XIII. Systematic Botany.

GEOLOGICAL AND PALÆONTOLOGICAL SCIENCE.— XIV. Geology ; XV. Palæontology.

MENTAL AND MORAL SCIENCE.—XVI. Psychology, Logic, Ethics.

Preliminary Scientific (M.B.) Examination.

Third Monday in July.   Fee, £5.

SUBJECTS.—Inorganic Chemistry ; Experimental Physics ; General Biology.

For further information with regard to these Examinations, the Examinations for Honours, and the various Prizes and Exhibitions offered for competition, see the Calendar of the University of London.

WHITWORTH SCHOLARSHIPS.

ABSTRACT FROM THE REGULATIONS.

The Whitworth Scholarships are of the value of £200, £150, and £100, and they are open for competition to any of Her Majesty's subjects under twenty-six years of age on the 1st May. Candidates must have been engaged in handicraft for at least three years, and have been at work at the vice and lathe, or the forge, or the bench, for at least six consecutive months in each of those years. They must have spent at least twelve months at the vice and lathe.

The competition will be in the following subjects :

Practical geometry.
Machine drawing.
Building construction.
Naval architecture.
Mathematics.
Theoretical mechanics.
Applied mechanics.

Sound, light and heat.
Magnetism and electricity.
Inorganic chemistry.
Metallurgy.
Steam.
Freehand drawing.

The maximum number of marks obtainable in most of the subjects will be, in the

Elementary stage	-	-	100
Advanced stage	-	-	200
Honours -	-	-	-	400

No candidate can obtain a Scholarship who has not passed in the second stage, or "honours," of practical geometry ; and the second or third stage, or the "honours" of those stages, of mathematics ; and obtained a first class in the first stage, or passed in the second stage or "honours," of theoretical mechanics ; and obtained a "good" in freehand drawing.

No candidate can obtain a Scholarship who has not attained sufficient handicraft power. And if thought necessary by the Department this may be tested by requiring him to make two Whitworth screw bolts, 1 in. in diameter, and 4 to 6 in. long, with hexagonal heads and nuts, alike within ·001 in.

Sir Joseph Whitworth will allow the scholars to attend his works at Manchester free of cost.

Candidates must apply to the Science and Art Department *before the* 15*th March*. Write for Science Forms, Nos. 90 and 330.

Further particulars may be obtained from the Whitworth Prospectus, price 3d., for which apply to the Secretary, Science and Art Department, South Kensington, London, S.W.

Students of University College, Bristol, intending to compete for Whitworth Scholarships, should send their forms to the Registrar, not later than Saturday, 7th March.

THE INSTITUTE OF CHEMISTRY.

ABSTRACT OF THE REGULATIONS FOR ADMISSION TO THE ASSOCIATESHIP.

Every Candidate for the Associateship will be required to produce evidence of the following qualifications :—

(1.) That he is not less than twenty-one years of age.

(2.) That he has passed satisfactorily through a course of three years' study in any one or more of the Universities or chartered or incorporated Colleges or Schools previously approved by the Council, in the subjects of Theoretical and Analytical Chemistry, Physics and Elementary Mathematics.

(3.) That he has passed such Examinations in these subjects at such Universities, Colleges and Schools as the Council may from time to time direct.

When, however, a Candidate for the Associateship cannot adduce evidence of having passed an examination in Theoretical and General Chemistry, Physics, and Mathematics, satisfactory to the Council, he may be required to pass an examination; such examination to be by printed or written questions, to which the Candidate shall return written answers, without access to books, MSS., or memoranda.

EXCEPTIONS.

If a Candidate has passed any of the following examinations, it will be considered as sufficient evidence of training in General and Theoretical Chemistry, Physics, and Elementary Mathematics, and he shall not be required to pass any further examination in these subjects.

(1.) The final Honours Examination for the degree of B.A. at the University of Oxford in the subject of Chemistry, in the School of Natural Science.

(2.) The final or Degree Examination for B.Sc. in the Universities of Edinburgh, Durham or London, or the Victoria University, in the subjects of Chemistry and Physics.

(3.) The Senior Moderatorship in Experimental Science in the University of Dublin.

(4.) The Associateship of the Royal School of Mines, if taken before 1884.

(5.) The Associateship of the Normal School of Science in the division of Chemistry.

(6.) The Associateship of the Royal College of Science, Dublin, in the faculty of Manufactures.

PRACTICAL EXAMINATION.

Every Candidate for the Associateship will be required to pass a Practical Examination in Analytical Chemistry as follows :—

Qualitative Analysis	...	Two days.
Quantitative Analysis	...	Two days.

With a brief *vivâ voce* Examination on the morning of the fifth day, when considered needful by the Examiner.

The Fee for this Examination is Two Guineas. In the event of the Candidate failing to pass, the Fee will not be returned to him, but he will be admitted to one subsequent examination on payment of One Guinea.

University College, Bristol, has been approved by the Council of the Institute as a College at which all the subjects required for the admission of Associates to the Institute are taught, and as a centre for the Practical Examination.

———————

Copies of the Regulations of the Oxford and Cambridge Local Examinations, the Examinations of the University of London, the Examinations of the College of Preceptors, and the LL.A. Examination for Women of the University of St. Andrew's, may be obtained on application to the Registrar. The Regulations for the Examinations of the Science and Art Department and for Whitworth Scholarships are kept in the office for reference.

SESSION 1884-85.

APPENDIX.

LIST OF SCHOLARS.

SESSION 1883—84.

Chemical Scholarship :—

J. Tudor Cundall.

First General Scholarship :—

Louisa T. Derrick.

Second General Scholarship :—

Henry A. Reed.

Third General Scholarship :—

Trevor H. Evans.

Catherine Winkworth Scholarships :—

Alice Jenner.
Ethel C. Moore.
Fanny L. Wadsworth.
Grace M. Wadsworth.

SESSION 1884—85.

Gilchrist Scholarship :—

Ralph Todhunter.

EXAMINATIONS OF DAY CLASSES.

CLASS I.   CLASS II.

INORGANIC CHEMISTRY.

First Term :—

Norman Leonard,   William Taylor,
Trevor H. Evans,   George F. Bergin,
S. Wolferstan Morgan,   P. Egerton Shaw,
William E. Tanner,   Arthur D. Owen.
Hector D. Munro.

Second Term :—

Norman Leonard,   William Taylor,
S. Wolferstan Morgan.   Fanny L. Wadsworth,
                                P. Egerton Shaw,
                                J. Temperley Grey.

ORGANIC CHEMISTRY.

Third Term :—

Wilfred M. Barclay,   J. Tudor Cundall,
Arthur Leche.   Katharine I. Williams,
                                Norman Leonard,
                                Walter C. Swayne.

MATHEMATICS.

ELEMENTARY.

First Term—Division I. :—

                                P. Egerton Shaw,
                                Louisa T. Derrick.

Division II. :—

                                Bessie Steadman,
                                Charles C. Hardy,
                                Edwin Baggs.

CLASS I.   CLASS II.

Division III. :—

Lewis Bartlett,
Lilian F. Cox,
Frederick C. Hughes,
George H. Pitt,
Bernard M. Vernon.

Second Term—Division I. :—

P. Egerton Shaw,
Louisa T. Derrick.

Division II. :—

Richard J. Durley,   Charles C. Hardy.
Edwin Baggs.

Division III. :—

Frances E. Craggs,   Lilian F. Cox,
Bernard M. Vernon.   Fanny K. Manning,
                       Francis G. Harrison,
                       Frederick C. Hughes.

Third Term—Division I. :—

Edith M. Badock,
Louisa T. Derrick,
P. Egerton Shaw,
Herbert L. Williams.

Division II. :—

Charles C. Hardy,
Frances E. Willett,
Herbert I. Jacques,
Edmund R. Dymond,
Lewis E. Bartlett.

Division III. :—

James E. W. Cook,
Frederick C. Hughes.

ADVANCED.

Second Term :—

Herbert L. Williams,
Hector D. Munro.

EXPERIMENTAL PHYSICS.

ELEMENTARY.

First Term :—

Herbert L. Williams,   Trevor H. Evans.
William E. Tanner.

CLASS I.   CLASS II.

Second Term :—

Richard J. Durley,   James H. Shindler,
William E. Tanner,   Lewis E. Bartlett.
Herbert L. Williams,
Trevor H. Evans.

Third Term :—

                                            Trevor H. Evans,
                                            Herbert L. Williams.

INTERMEDIATE.

First Term :—

John D. Hyde,   James W. Cruikshank,
William Taylor,   P. Egerton Shaw,
S. Wolferstan Morgan,   Edward T. Carter,
Fanny L. Wadsworth,   Hector D. Munro.
J. Temperley Grey.

Second Term :—

John D. Hyde.   Edward T. Carter,
                                            William Taylor,
                                            Edwin Baggs,
                                            P. Egerton Shaw.

Third Term :—

P. Egerton Shaw.   Fanny L. Wadsworth,
                                            Hector D. Munro,
                                            William Taylor,
                                            Charles C. Hardy.

ELECTRO-TECHNICS.

Third Term :—

                                            Edmund R. Dymond,
                                            Charles C. Hardy,
                                            Edward T. Carter,
                                            Hector D. Munro.

ENGINEERING.

FIRST YEAR COURSE.

First Term :—

P. Egerton Shaw,   William S. Halsey.
J. Tudor Cundall,
Herbert L. Williams.

CLASS I.   CLASS II.

Second Term:—

Herbert L. Williams,	William S. Halsey,
P. Egerton Shaw,	Hugh T. Sadler,
J. Tudor Cundall.	Hugh P. Leonard.

Third Term:—

P. Egerton Shaw,	Edward C. Webster,
Herbert L. Williams.	Hugh T. Sadler.

SECOND YEAR COURSE.

First Term:—

Herbert I. Jacques,	Charles C. Hardy,
Edmund R. Dymond,	John D. Hyde,
Henry L. T. Foster.	Edward T. Carter.

Second Term:—

Edmund R. Dymond,	Charles C. Hardy,
Herbert I. Jacques,	Hector D. Munro.
Henry L. T. Foster.	

Third Term:—

	Cyril F. Bengough,
	Herbert I. Jacques.

THIRD YEAR COURSE.

First Term:—

George F. Fry.	Edwin Baggs.

Second Term:—

George F. Fry,	
Edwin Baggs.	

ENGINEERING DESIGN AND DRAWING.

FIRST YEAR COURSE.

First Term:—

Herbert L. Williams.	William S. Halsey.

Second Term:—

Herbert L. Williams,	
William S. Halsey,	
Edward C. Webster.	

SECOND YEAR COURSE.

First Term:—

Edmund R. Dymond.	Charles C. Hardy,
	Herbert I. Jacques,
	Henry L. T. Foster.

CLASS I.   CLASS II.
                      Second Term :—

Edmund R. Dymond.   Hebert I. Jacques,
                               Henry L. T. Foster,
                               Charles C. Hardy.

THIRD YEAR COURSE.

First Term :—

Edwin Baggs.   George F. Fry.

Second Term :—

Edwin Baggs.   George F. Fry.

GEOMETRICAL DRAWING.

First Term :—

Edwin Baggs.   James W. Cruikshank.

Second Term :—

Edwin Baggs,   George F. Fry,
Herbert I. Jacques.   Henry L. T. Foster,
                               James W. Cruikshank,
                               Cyril F. Bengough.

SURVEYING.

Third Term :—

Herbert L. Williams,   P. Egerton Shaw.
Walter St. John Mildmay,
Herbert I. Jacques,
Cyril F. Bengough.

GEOLOGY.

First Term :—

Isabella C. Fortey.   Trevor H. Evans.

Second Term :—

Isabella C. Fortey.   Trevor H. Evans,
                               Kate M. Wood,
                               Herbert I. Jacques.

LITHOLOGY.

Third Term :—

Richard I. Pocock.

<div align="center">

CLASS I.   CLASS II.

ZOOLOGY.

First Term :—

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S. Wolferstan Morgan,	Minnie Clark,
J. Temperley Grey,	Trevor H. Evans.
William Taylor,	
Fanny L. Wadsworth.	

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Second Term :—

</div>

J. Temperley Grey.	S. Wolferstan Morgan,
	William Taylor,
	Fanny L. Wadsworth.

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Third Term :—

</div>

Theodore M. Stiles,	Fanny L. Wadsworth,
S. Wolferstan Morgan.	Herbert J. Thomas,
	J. Temperley Grey.

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BOTANY.

Second Term :—

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S. Wolferstan Morgan,	J. Temperley Grey.
William Taylor.	

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Third Term :

</div>

S. Wolferstan Morgan,	William Taylor,
Herbert J. Thomas.	J. Temperley Grey.

<div align="center">

POLITICAL ECONOMY.

First Term :—

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Mary Seawell.	Lillie Wills.

<div align="center">

Third Term :—

</div>

Mary Seawell.	

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LOGIC.

First Term :—

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Edith E. Cooper,	David M. Davies,
Constance Budgett,	George Eaves.
Elizabeth W. Fry,	
Florence O'Brien.	

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Second Term :—

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Edith E. Cooper,	Hugh Henderson.
Florence O'Brien,	
Constance Budgett,	
David M. Davies,	
Elizabeth W. Fry,	
Nesta Higginson.	

Class I.   Class II.

MODERN HISTORY.

First Term :—

Mary Seawell,	Alice M. Budgett,
Mary I. Ogilvie,	Fanny K. Manning,
Ethel C. Moore,	Lilian F. Cox,
Agnes E. Tanner,	Amy Markby,
Flora M. Waring,	Basil C. Lemonius.
E. Beatrice Marshall.	

Second Term:—

Mary I. Ogilvie,	Lilian F. Cox,
Mary Seawell,	Alice M. Budgett,
Agnes E. Tanner,	Fanny K. Manning,
E. Beatrice Marshall,	Basil C. Lemonius.
Ethel C. Moore,	
Flora M. Waring.	

Third Term :—

Mary Seawell,	Basil C. Lemonius,
Agnes E. Tanner,	Alice M. Budgett.
Flora M. Waring.	

ENGLISH LITERATURE.

First Term:—

Mary A. Hartnell,	Celia W. Price.
Ethel C. Moore,	
Flora M. Waring.	

Second Term:—

Mary A. Hartnell,
Beatrice Wait,
Flora M. Waring.

Third Term:—

Flora M. Waring,
Mary A. Hartnell,
Francis L. Evans.

GREEK.

Elementary.

First Term—Division I. :—

Grace M. Wadsworth.

Second Term—Division I. :—

Louisa T. Derrick,
Frederick C. Hughes.

Division II. :—

John F. J. Tiddy.

Third Term—Division I. :—

Frederick C. Hughes.

CLASS I.	CLASS II.

Division II. :—

John F. J. Tiddy.   Francis G. Harrison.

ADVANCED.

First Term :—

Edith M. Clarke,
David M. Davies,
Evan Morgan.

Second Term :—

David M. Davies.

Third Term :—

David M. Davies }
Louisa T. Derrick }

LATIN.

ELEMENTARY.

First Term—Division I. :—

Caroline Sturge,
Frances E. Willett.

Division II. :—

Amelia M. Richards.   John F. J. Tiddy,
Francis G. Harrison.

Second Term—Division I. :—

Frances E. Willett.   Frederick C. Hughes.

Division II. :—

Amelia M. Richards.   John F. J. Tiddy,
Francis G. Harrison.

Third Term—Division I. :—

Frances E. Willett.   Frederick C. Hughes.

Division II. :—

John F. J. Tiddy.   Amelia M. Richards,
Francis G. Harrison.

ADVANCED.

First Term :—

James H. Shindler,
Louisa T. Derrick,
David M. Davies,
Lewis E. Bartlett.

Class I.   Class II.

Second Term:—

Sarah M. Collie,   David M. Davies,
Alice Jenner,   Amy G. Bengough.
Louisa T. Derrick.

Third Term:—

David M. Davies,
Louisa T. Derrick.

FRENCH.

ELEMENTARY.

First Term:—

James H. Shindler.   Lilian F. Cox,
              Fanny K. Manning,

Second Term:—

James H. Shindler,
Fanny K. Manning,
Lilian F. Cox.

ADVANCED.

Second Term:—

Alice Jenner.   William Thomson.

Third Term:—

Louisa T. Derrick.
William Thomson.

GERMAN.

ELEMENTARY.

First Term:—

Caroline Sturge.   Selina Wathen.

Second Term:—

Selina Wathen,
Florence Willcox.

Third Term:—

Selina Wathen.

ADVANCED.

First Term:—

Charles E. Pratt.

Second Term:—

Richard J. Durley.   Charles E. Pratt.

EXAMINATIONS OF EVENING CLASSES.

INORGANIC CHEMISTRY.

CLASS I.   CLASS II.

First Term:—

Emily M. Christian,	Latimer W. L. Thomas,
Elizabeth Parnall.	Charles Flint,
	William E. Glanville.

Second Term:—

Elizabeth Parnall,
Emily M. Christian,
George O. Warner.

ELECTRICITY AND MAGNETISM.

Second Term:—

J. Tudor Cundall,	Llewellin N. Tyack,
James C. M. Stanton	Theodore M. Stiles,
	Edwin G. Price,
	Cromwell W. Warren,
	Thomas F. Wood,
	Stephen S. Follwell,
	Frances E. Hodges.

SOUND, LIGHT AND HEAT.

Second Term:—

William P. Taylor.

APPLIED MECHANICS AND STEAM.

First Term:—

Herbert Ashmead,	Ernest W. Mulleny,
Joseph G. Prosser.	Frank J. Payton.

Second Term:—

Joseph G. Prosser,
Herbert Ashmead.

GEOMETRICAL DRAWING.

First Term:—

P. Egerton Shaw.	Ernest W. Mulleny.
Frank J. Payton.	

CLASS I.   CLASS II.
Second Term:—

Frank J. Payton.   Joseph G. Prosser,
                                  William Aveline,
                                  Arthur H. R. Pope.

MACHINE DRAWING.

Second Term:—

Frank J. Payton,   William Aveline.
Arthur H. R. Pope.

GEOLOGY.

First Term:—

Elizabeth Parnall,   Herbert Ashmead,
Emily M. Christian,   Theodore Sturge.
Florence Herapath.

Second Term:—

Elizabeth Parnall,   Walter C. Williams.
Emily M. Christian,
Florence W. Herapath.

BOTANY.

Second Term:—

Isabella C. Fortey.   Emily M. Christian,
                                  Henrietta Castle.

Third Term:—

                                  Mary A. Cross.

ENGLISH HISTORY.

Second Term:—

Ethel C. Moore,   Phyllis M. Spencer.
Mary C. Dickson.

ENGLISH LITERATURE.

Second Term:—

                                  Hugh P. Leonard,
                                  Phyllis M. Spencer.

GREEK.

MIDDLE.

First Term:—
                                  Edwin C. Nickalls.

ADVANCED.

First Term:—
                                  Edgar Priestly.

10

CLASS I.   CLASS II.

LATIN.

ADVANCED.

First Term :—

Emily P. Pakeman.

Second Term :—

Emily P. Pakeman,   Richard J. Durley.
Alice Jenner,
Diana A. Thomas.

Third Term :—

Emily P. Pakeman,
Emma E. Lawrence.

FRENCH.

MEN.

ELEMENTARY.

First Term :—

Arundel Shoard,   William J. Lewis,
Herbert J. Higgs.   Charles R. Pleasance,
                         Alfred W. Edgar,
                         Henry H. Jones,
                         William A. Jones,
                         William Habgood.

Second Term :—

Arundel Shoard.   Arthur J. Baker,
                         Henry H. Jones,
                         William J. Lewis.

Third Term :—

Arundel Shoard,
Richard J. W. Down,
Arthur J. Baker.

ADVANCED.

First Term :—

Henry A. Onn,
Walter W. Bond.

Second Term :—

Richard J. Durley.   Jasper White.

Third Term : —

Charles Paul.

Class I.   Class II.

WOMEN.

Elementary.

First Term :—

Caroline Ferris,   Marion Thomas,
Bessie Steadman,   Kate Steadman,
Mary Wise,   Mary Mottram,
Mary Onn.   Ethelwyn Macfarlane,
                                            Helen Palmer,
                                            Katie Poole.

Second Term :—

Bessie Steadman,   Katie Poole,
Mary Wise,   May Thomas,
Kate Steadman,   Florence Moxey,
Mary Lenn.   Helen M. Palmer.

Third Term :—

Bessie Steadman,   Mary Wise.
Kate Steadman,
Mary Onn.

Advanced.

First Term :—

Laura N. Moore.   Francis Beckley,
                                            Lydia M. Phelps,
                                            Jessie C. E. Davidson,
                                            Helen France.

Second Term :—

Laura N. Moore,   Lydia M. Phelps,
Francis Beckley,   Florence Clune.
Helen France.

Third Term :—

Lucy C. B. St. Paul.   Gertrude Lucy,
                                            Helen France.

GERMAN.

Elementary.

Second Term :—

                                            Florence M. Hinde.

Third Term :—

Margaret A. Walker,   Anna S. Marvin.
Gertrude Lucy.

Advanced.

Second Term :—

Gertrude Lucy,   Anna S. Marvin.
Margaret A. Walker.

STUDENTS OF THE COLLEGE.

Session 1883-84.

Day.

Atherton, Gertrude A.
Aveline, Henry T. S.
Baber, Edith M.
Baber, Ellen D.
Badock, Edith
Badock, Stanley H.
Baggs, Edwin
Barclay, Mabel D.
Barclay, Wilfred M.
Barrow, Alfred
Bartlett, Lewis E.
Beddoe, John C.
Bengough, Amy G.
Bengough, Beatrice E.
Bengough Cyril F.
Bergin, George F.
Bevan, William
Bishop, William H.*
Bradley, Katherine H.
Bryant, Cecil M. B.
Bubb, Edward*
Budgett, Alice M.
Budgett, Constance E.
Budgett, Henry
Burgess, Arthur J.
Calder, Frank
Carpenter, Arthur W.
Carter, Edward T.
Chambers, Frank A.*
Chilton, Guy
Clarke, Edith M.
Clarke, Minnie
Collie, Sarah M.
Cook, James E. W.
Cooper, Amy K.
Cooper, Edith E.
Cox, Lilian F.
Craggs, Frances E.
Cruikshank, James E. W.
Cundall, J. Tudor

Daniel, Edgar B. R.
Davies, David M.
Densham, H. Percival
Derrick, Louisa T.
Downes, Arthur
Durley, Richard J.
Dury, H. Amy
Dymond, Edmund R.
Dymond, Florence M.
Eaves, George
Evans, Frances L.
Evans, Mrs.
Evans, Trevor H.
Forbes, Henry G.
Fortey, Isabella C.
Foster, Henry L. T.
Fox, Brothers & Co.*
Fox, James
Fry, Elizabeth W.
Fry, George F.
Garaway, Emily
Gedye, Kate S.
Glanville, William E.
Gosnell, Janet E.
Gosnell, Mary L.
Green, Frances L.
Grey, J. Temperley
Grove, Norah
Halsey, William S.
Harding, Herbert E.
Hardy, Charles C.
Harford, Hugh W. L.
Harrison, Francis G.
Harrison, G. Waller
Hartnell, Mary A.
Heath, Arthur J.
Hellier, Walter J. G.
Henderson, Hugh
Henry, James*
Hewat, Henry*

Higginson, Nesta
Hirst, Tom B.*
Hooper, Henry R.
Hughes, Frederick C.
Hunt, William C. E.
Hunter, Ernest J.
Hyde, John D.
Jacques, Herbert I.
Jenner, Alice
Jones, John H.
Jones, T. Gordon*
Jones, Willoughby
Joseph, Arthur H.
King, Mrs.
Lawrence, M. Scott
Leche, Arthur
Leonard, Ethel I.
Leonard, Hugh P.
Leonard, Norman
Lemonius, Basil C.
Lendrum, Robert H.*
Livesay, Alfred P.
Lovell, Edward
Lucas, Jessie M.
Ludlow, Maria
Lushington, Ernald G. W.
Manning, Fanny K.
Markby, Amy
Marshall, E. Beatrice
May, Ada C.
McCall, George R.*
Melhuish, William F.
Melrose, James*
Mildmay, Walter St. John
Mole, Harold F.
Monks, Herbert E.
Moore, Ethel C.
Moorsom, Warren M.
Morgan, Evan
Morgan, S. Wolferstan
Mullings, Thomas J.*
Munro, Hector D.
Newbolt, Emily E.
Newnham, Walter F.
Nickalls, Edwin C.
Oakley, Edward M.
O'Brien, Constance
O'Brien, Florence
Ogilvie, Mary I.
Ord, William T.
Owen, Arthur D.
Owen, George F.
Palmer, Frank T.

Pawlett, John
Peck, Edward S.
Pitt, George H.
Playne, C. Morton*
Pocock, Reginald I.
Pope, Arthur H. R.
Porteous, Robert*
Pratt, Charles E.
Price, Celia W.
Pringle, James
Pritchett, Rowland
Rawlinson, Harold*
Reynolds, Henry C.
Richards, Amelia M.
Roberts, Henrietta E.
Roberts, J. Albin*
Rowley, Charles A.
Sadler, Hugh T.
Sandford, Mary A.
Sconce, Robert C.
Seawell, Mary
Shaw, P. Egerton
Shindler, James H.
Smith, Beatrice R.
Smith, Charles
Stanton, James C. M.
Steadman, Bessie
Stiles, Theodore M.
Sturge, Caroline
Swann, Cameron
Swayne, Walter C.
Tanner, Agnes E.
Tanner, William E.
Tarver, Constance M.
Taylor, Frank W.*
Taylor, William
Thomas, Arthur
Thomas, Herbert J.
Thomas, Mabel
Thomas, S. Sylvester
Thomsom, William
Tiddy, John F. J.
Tremayne, Henry W.
Tremayne, John H.
Tryon, Mrs.
Tufro, Juan
Turner, Edith M.
Vernon, Bernard M.
Wadsworth, Fanny L.
Wadsworth, Grace M.
Wait, A. Beatrice
Wait, Mary E.
Walker, William*

Wansey, Arthur A.
Ward, Arthur
Ware, Fabian A. G.
Ware, John C.
Waring, Flora M.
Wathen, Selina
Watson, Rev. Patrick
Watters, John*
Webster, Edward C.
Wedmore, Isabel
Whitwill, Ada
Whitwill, Bessie M.
Willcox, Florence

Willett, Frances E.
Williams, Herbert L.
Williams, Josephine M. W.
Williams, Katharine I.
Williams, Lionel H.
Wills, Annie B.
Wills, Frederick C.
Wills, Lillie
Wilson, William P.*
Wise, Annie
Wood, Kate M.
Young, Thomas

* Correspondence Class.

Exclusive of Medical Students (97).

EVENING.

Ackland, John M.
Allen, Robert C.
Anstee, Ida J.
Anstee, Minnie E.
Ashmead, Herbert
Ashwin, Harriet
Ashworth, Alice E.
Aveline, William
Baber, Clement S.
Baber, Ellen D.
Baber, Edith M.
Badock, Edith
Badock, Stanley H.
Baker, Arthur J.
Baker, Kate
Banfield, Arthur J.
Barclay, Brenhilda
Barclay, Theodora
Barnett, Herbert C.
Bartlett, Albert T.
Bartlett, Kate E.
Beall, Eva
Beckley, Frances E.
Bennett, Henry
Benson, Harry
Berry, Edward E.
Bird, Douglas S.
Blackburne, Gilbert I.
Blake, Katherine G.
Bond, Frederick
Bond, Walter M.

Boucher, Charles E.
Boycott, Frances G.
Brayley, Edith M.
Brown, Georgina
Bucknell, William
Budgett, S. Arnold
Bulman, Fanny
Burgess, Arthur J.
Calder, Frank
Cameron, Peter
Carpenter, Arthur W.
Carter, George H.
Castle, Henrietta
Castle, Maria I.
Castle, Rose A.
Chattock, Herbert E.
Christian, Emily M.
Clapp, Henry W.
Clarence, Mrs.
Clark, Minnie
Clark, Robert W.
Clarkson, Frank W.
Clune, Florence I.
Clutterbuck, Edward
Coates, Annie E.
Collett, Arthur F.
Coram, Stephen C.
Cox, Arthur W.
Cox, Edwin H.
Cox, William H.
Crook, Henry O.

Cross, Edward
Cross, Elizabeth M.
Cross, Mary A.
Cullmore, Jane
Cundall, J. Tudor
Cundall, Rose E.
Davidson, Jessie C. E.
Davies, David M.
Davies, Herbert G.
Densham, H. Percival
Derrick, Marshall A.
Dickson, Mary C.
Dowling, Annette
Down, Robert J. W.
Downs, Henry
Drew, L. Henrietta
Durley, Richard J.
Edgar, Alfred W.
Edgeworth, Ellen E.
Edgeworth, Margaret A.
Emett, Eva M. A.
Evans, George A.
Fawcett, Fritz B.
Feltham, Walter J.
Ferris, Caroline
Flint, Charles
Flint, James I.
Folwell, Stephen S.
Ford, George E.
Fortey, Isbabella C.
France, Helen E.
Frank, Louisa
Freeman, Annie C.
Froud, John M.
Gabriel, James N.
Gibbons, Mary
Golding, Frank Y.
Gosnell, Janet
Gosnell, Mary L.
Gotch, Frederick W.
Gough, Ernet W.
Gover, George
Gover, Henry E.
Grace, James E.
Grindon, Florence
Grindon, Lucy H.
Grindon, Stanley H.
Gunter, Mrs. Howell
Gurnsey, Charles E.
Habgood, William E.
Hall, Thomas A.
Hames, William H.
Harding, Florence E.

Harrhy, Florence K.
Harrhy, Phœbe M.
Hatch, Delphine J.
Hatch, Stanley
Hawkes, William H.
Henderson, Hugh
Henderson, Joseph J.
Henn, Sarah M.
Herapath, Florence W.
Hewlett, Edith E.
Hicks, Mrs. Lucy E.
Higgs, Herbert J.
Hinde, F. Maude
Hindly, Leonard
Hirst, Bertram F.
Hodges, Frances E.
Hodges, Marian
Holmes, James G.
Hudson, Mary L.
Hunt, A. Marshall
Hunt, Theodora
Hunter, Thomas
Hurn, Albert J.
Jakeways, Edward R.
Jarrett, Kate S.
Jefferis, Annie E.
Jenner, Alice
Jennett, Albert J.
Johns, Ethel
Jones, Charles
Jones, Elizabeth C.
Jones, Henry H.
Jones, William A.
Jones, William L.
Kearsey, Adeline L.
Kemp, Charles W.
Kerslake, Walter E.
Lawrence, Edith I.
Lawrence, Emma E.
Lawson, William
Leggett, Fanny E.
Lemon, Alice M.
Lemon, Isabel C.
Leonard, Hugh P.
Le Ray, Edwin
Lewis, Helen A.
Lewis, William J.
Long, John W.
Lucy, Gertrude
Ludlow, Maria
Macfarlane, Ethelwyn C.
Macmillan, Charles D. H.
Manley, Emily

Mark, Henry
Martyn, Agnes K.
Martyn, Elinor E.
Marvin, Anna S.
Meredith, Charles
Metcalfe, Arthur W.
Mildmay, Walter St. John
Miller, Caroline E.
Miller, Susan A.
Mills, Arthur E.
Moore, Ellen
Moore, Ethel C.
Moore, Laura N.
Morgan, S. Wolferstan
Morris, Patrick
Mottram, Mary E. W.
Moxey, Florence
Mulleny, Ernest W.
Murphy, Mary J.
Murray, Alexander D.
Murray, Lucy C.
Neate, Sarah A. K.
Nelson, Andrew B.
Newport, Edmund W.
Newth, Arthur E.
Nickalls, Edwin C.
Norris, Herbert L.
Nott, Mary I.
Onn, Henry A.
Onn, Mary E.
Oram, Harry K.
Owen, George F.
Padfield, Laura M.
Pakeman, Emily P.
Pakeman, Mary T,
Palmer, Benjamin C.
Palmer, Helen M.
Parnall, Elizabeth
Parry, Albert
Parsons, John H.
Paul, Charles
Payton, Frank J.
Peake, Helen M.
Peck, Alice M.
Peck, Edward S.
Peckett, John F.
Peckett, Thomas
Percy, Minnie
Phelps, Lydia M.
Phillips, Frances M.
Philpott, Albert T.
Piggott, Stanley W.
Pillinger, Henry J.

Pitt, Rachel W.
Pleasance, Charles R.
Poole, Katie
Pope, Arthur H. R.
Potter, John W.
Powell, Alfred W.
Prentice, Herbert N.
Price, Edwin G.
Priestly, Edgar
Pring, Sarah J.
Prosser, Joseph G.
Prowse, Lucy
Prowse, Rose
Read, Edward H.
Reed, Henry A.
Rees, Joseph H.
Rees, Walter E.
Richards, Annie E.
Richards, Humphry W.
Riddell, Mary A.
Rinder, Sinclair
Roberts, Henrietta E.
Robertson, John A.
Rogers, Stephen W.
Rootham, Samuel A.
Russell, Albert
Sadler, Hugh T.
Schacht, Florence M.
Scoones, Douglas
Scrase, Frank E.
Shaw, P. Egerton
Sherring, Hugh J.
Shoard, Arundel
Smith, Amelia M.
Smith, Janet M.
Smith, Martha C.
Spencer, Phyllis M.
Spurll, Frank M.
Stanley, William G.
Stanton, James C. M.
Steadman, Mrs.
Steadman, Bessie
Steadman, Kate E.
Stevens, F. Percival
Stevens, Maud F.
Stevenson, Sophia A.
Stiles, Theodore M.
St. Paul, Lucy C. B.
St. Paul, Florence M. G.
Stroud, Alice M.
Sturge, Theodore
Summerhays, William
Tanner, William

Tarr, Frederick
Tarver, Constance M.
Taylor, William P.
Thomas, Alice
Thomas, Diana A.
Thomas, George
Thomas, Latimer W. L.
Thomas, Marian
Thomas, Seth
Thwaites, John H.
Tidcombe, George R. V.
Townsend, Charles K.
Tozer, Walter G.
Tucker, Ada E.
Tucker, Mary H.
Tucker, Sydney
Tucker, William L.
Tuckett, Frank C.
Tuckey, Sarah K.
Tufro, Juan
Tullock, Estelle
Turrell, Sophia S.
Tyack, Llewellyn N.
Tyrrell, Edwin
Walker, Margaret A.
Ward, Arthur
Ward, Ernest
Ware, Frederick H.

Ware, Mrs.
Waring, Flora M.
Warner, George O.
Warren, Cromwell W.
Waterman, Fanny L.
Watkins, Walter A.
Webb, Herbert B.
Weedon, Marion H.
Weir, William L.
Wells, Arthur E.
Werthmüller, Caroline
Whibley, Gertrude
Whitcombe, John H.
White, Jasper
Williams, Ada E.
Williams, Eva M.
Williams, George S.
Williams, Henry W.
Williams, Walter C.
Willmott, Herbert N.
Wilson, Louisa M.
Wise, Mary E.
Witcombe, Ellen E.
Wood, Frederick M. H.
Wood, Thomas F.
Wood, William
Woodman, Carrie E.
Young, Thomas

Exclusive of Students attending College District Classes (106).

EXAMINATIONS FOR HONOUR CERTIFICATES.

INORGANIC CHEMISTRY.

Examiners, M. M. PATTISON MUIR, Esq., University of Cambridge; Professor RAMSAY, Ph.D., University College, Bristol.

31st March, 1884, 2—5.

1. Describe three experiments illustrative of the expression "conservation of mass."

2. Give general methods for the preparation of chlorides of the metals.

3. Give an account of reactions of NH_3, PH_3, and As_2H_3, which show that these compounds ought to be placed in the same group.

4. Why is "aqua-regia" a more active chemical reagent than either nitric or hydrochloric acid separately?

5. Give three examples explanatory of the use of the term "substitution" in chemistry.

6. Give a conclusive proof that the molecular formula of ozone is O_3.

7. Give two examples of dissociation. Shortly discuss the bearings of the facts of dissociation on the application of *Avogadro's law* to determine molecular weights of gaseous compounds.

8. Describe shortly, giving equations, the chemical changes which occur in the processes of photography, more especially showing what occurs (1) in coating the plate with a sensitive film; (2) in developing the picture; (3) in fixing the picture.

ENGINEERING.

Examiners, Professor MAIN, M.A., D.Sc., Royal
School of Mines; Professor HELE SHAW, Uni-
versity College, Bristol.

PAPER 1.—GEOMETRICAL DRAWING.

27th June, 1884, 10—1.

1. Draw from a given point a straight line per-
pendicular to each of two given lines.

2. A sphere 1″ diameter rests on a cube of 2″
edge, which again rests on a horizontal plane. The
centres of sphere and cube are in the same vertical
line. Draw a projection of the whole on a plane
passing through one of the upper horizontal edges
of the cube and touching the sphere.

3. Draw a tangent plane to a sphere from a given
external point.

4. Draw a plan and elevation of a hexagonal
prism, the axis of which is inclined at 60° to the
horizontal plane. One side of one of the hexagons
forming the ends is inclined at 20° to the same
plane, each side of the hexagon is 1″ long, and the
length of the axis is 3″.

5. Draw the isometric projection of the solid
represented in the accompanying figure (I.)

6. The axes of the cylinder and cone in the
accompanying figure (II.) intersect. Find the de-
velopment of their intersecting surfaces.

PAPER 2.—MACHINE DRAWING AND DESIGN.

27th June, 1884, 2—5.

1. Draw to the scale 1″ = 1 foot, the plan and
elevation of the Allen link motion from the accom-
panying diagram.

2. Mention the principal varieties of cast-iron, pointing out the circumstances under which you would employ them.

3. What considerations would guide you in determining (a) the diameter, (b) the length, (c) the thickness of the cylinder of a steam-engine? Explain concisely the process of moulding a cylinder in the foundry.

4. Make a sketch, with dimensions of the piston for a marine engine, giving a cross-section showing the several parts.

5. Classify the various forms of valves used in steam-engines, and consider their relative advantages.

6. Find the H.P. which could safely be transmitted by a hollow shaft of Whitworth compressed steel, 6″ outside and 5″ inside diameter, the power being taken off at a distance of 8″ from the axis of the shaft.

Assume N = 50 revs. per minute
f_s = 14,000 lbs. per sq. in.

7. Compare the relative advantages of chain, belt, and rope gearing for transmitting power to machinery.

Paper 3.—Prime Movers.

28th June, 1884, 10—12.

1. A water-wheel has an efficiency of 60%. The water it uses passes over a weir with the form and dimensions shown in the annexed figure, and has an effective fall of 12 feet.

If $Q = 3 \cdot 31 \, l \, (H \sqrt{H} - h \sqrt{h})$,
where Q = cu. ft. per second of water discharged; find the H.P. which can be obtained from the wheel.

2. Describe the hydraulic apparatus used in dock systems, including the double-acting pump for sup-

plying the accumulator, the accumulator itself, the system of pipes with their connections, and the hydraulic engines which work the dock gates.

3. The composition of a coal (Powell's Duffryn) was found to be—

$$
\begin{aligned}
&\text{Carbon} &&- 92{\cdot}49\,°/_\circ \\
&\text{Hydrogen} &&- 4{\cdot}04\,°/_\circ \\
&\text{Oxygen} &&- 3{\cdot}47\,°/_\circ
\end{aligned}
$$

Find its calorific power or thermal value, and the air which 1 lb. of it requires for combustion.

4. What is meant, in the Theory of Heat, by a "Perfect Heat Engine"? Show that the efficiency of such an engine is the greatest possible for given temperatures of source and refrigerator. Hence find the greatest theoretical efficiency of an engine whose furnace efficiency is ·7, and whose temperature of boiler and condensers are 300° C. and 100° C. respectively.

5. (a) Give a sketch of a marine boiler, and indicate the mode of arranging such boilers so as to give convenience in stoking ;

or,

(b) Mention the principal levers, cocks, &c., which are worked from the foot-plate of a locomotive, and explain their uses.

6. Sketch and describe the "Otto Silent" Gas Engine. In some experiments, an account of which has been recently published in a foreign journal, the curve of expansion was found to correspond in form to an "adiabatic" curve. From the equation of the latter—viz., $\frac{pv\gamma}{\tau} = $ a constant—the *total* heat was calculated. Show from the construction of the engine why this mode was erroneous.

7. State carefully the manner in which you would proceed to "test" a steam-engine or other prime mover.

Paper 4.—Theory of Machines and Mechanism.

28th June, 1884, 12—2.

1. Give a brief outline of the progress of machine development from the earliest times.

2. There are certain so-called "simple machines," usually described in text-books. Analyse them on Kinematical principles, and show what relation really exists between them.

3. Show by means of outline sketches some of the applications of the mechanism (C''_4) called by Reuleaux the "Quadric Crank Chain."

4. Show that an accurate screw requires to be constructed in a screw-cutting lathe.

> Give the wheels you would use in order to obtain a left-handed screw with 13 threads to the inch, when the leading screw of the lathe has $\frac{1}{2}''$ pitch and the change-wheels rise by intervals of five teeth from 20 to 120.

5. Give suitable numbers of teeth for the wheels of an eight-day clock.

6. Describe with a sketch the lever escapement of watches.

7. Describe the mode of action of the " Masked ratchet." How is this device employed in printing two impressions of the same number, the successive numbers being consecutive?

8. The centre of a toothed wheel, A, 13 inches in diameter at the pitch circle, moves in a circle, but A

is kept from turning. The teeth of A gear with a wheel, B, 7 inches in diameter at the pitch circle, round which A moves. When the centre of A has made 175 revolutions, find the number of revolutions made by B in the same time.

LOGIC.

Examiners, ALFRED ROBINSON, Esq., M.A., New College, Oxford; Professor FANSHAWE, M.A., University College, Bristol.

June, 1884.

In what figures are the following moods valid :— AAI, EIO, IAI? Give examples of syllogisms in Bokardo, Camenes, and Festino. Show how they may be reduced to the first figure.

2. In what sense has the existence of "real kinds" in Nature been either maintained or impugned?

3. Explain: Substantial term—Explicative proposition—Second intentions—Predicament—Immediate inference by added determinants—Predicable—Goclenian figure—Modus Tollens—Episyllogism—Complex Constructive Dilemma.

4. What is the best definition of Induction?

5. Compare Mill's doctrine of Causation with Hume's.

6. What value do you attach to the quantification of the predicate?

7. On what grounds do we believe in the uniformity of Nature?

8. How far do you consider Fallacies to be an integral part of Logic? How would you classify them?

9. Define: Law—Probable evidence—Imperfect induction—Theory—Phenomenon—Idealism.

10. What is the relation of Mill's methods of Experimental Inquiry to Bacon's Tabulæ?

11. Trace throughout Logic the importance of the distinction between analytical and synthetical.

12. " Logic is the common ground on which the partisans of Hartley and of Reid, of Locke and of Kant, may meet and join hands."—MILL.

Is this conception of Logic adhered to consistently throughout Mill's Treatise?

BRISTOL MEDICAL SCHOOL,

AFFILIATED TO

UNIVERSITY COLLEGE,

BRISTOL.

SCHOLA · MEDICINÆ · BRISTOL:

NON·AUDET·NISI·QUI·DIDICIT·DARE

MDCCCXXVIII

SESSION 1884-1885.

THE WINTER SESSION

Will commence on WEDNESDAY, October 1st, 1884, and will continue
for Six Months, with a Recess at Christmas.

THE SUMMER SESSION

Will commence on MONDAY, May 4th, 1885, and will terminate
at the end of July.

ADMISSION OF STUDENTS.

Attendance will be given to enter Students and to issue Cards
of Admission to Classes* on the following days :—

Winter Session: WEDNESDAY, October, 1st, 4 to 5 p.m.
Summer Session: MONDAY, May 4th, 4 to 5 p.m.

E. MARKHAM SKERRITT, M.D.,

Dean.

MEDICAL SCHOOL, UNIVERSITY COLLEGE,
TYNDALL'S PARK, BRISTOL.

* See Regulation 3, p. 12.

GOVERNING BODY.

W. PROCTOR BAKER, Esq. (1), Treasurer to University College; President of the Bristol General Hospital, *Chairman.*

E. C. BOARD, M.R.C.S. (4), Senior Surgeon to the Bristol Royal Infirmary.

G. F. BURDER, M.D., F.R.C.P. (5), Consulting Physician to the Bristol General Hospital.

Rev. J. W. CALDICOTT, D.D. (1).

C. D. CAVE, Esq. (2), President of the Bristol Royal Infirmary.

ALBERT FRY, Esq. (1), Chairman of the Council of University College.

LEWIS FRY, Esq., M.P. (1), Vice-Chairman of the Council of University College.

E. LONG FOX, M.D., F.R.C.P. (4), Consulting Physician to the Bristol Royal Infirmary.

W. MICHAEL CLARKE, M.R.C.S. (5), Consulting Surgeon to the Bristol General Hospital.

Professor B. JOWETT, M.A. (1), Master of Balliol College, Oxford.

F. P. LANSDOWN, M.R.C.S. (5), Senior Surgeon to the Bristol General Hospital.

HENRY NAISH, Esq. (3), Treasurer to the Bristol General Hospital.

AUGUSTIN PRICHARD, F.R.C.S. (4), Consulting Surgeon to the Bristol Royal Infirmary.

E. MARKHAM SKERRITT, M.D. Lond., B.S., B.A., M.R.C.P. (6), Senior Physician to the Bristol General Hospital; Lecturer on Medicine at the Medical School, *Dean.*

R. SHINGLETON SMITH, M.D. Lond., B.Sc., M.R.C.P. (6), Physician to the Bristol Royal Infirmary; Lecturer on Physiology at the Medical School.

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1. Elected by the Council of University College.
2. Elected by the Committee of the Bristol Royal Infirmary.
3. Elected by the Committee of the Bristol General Hospital.
4. Elected by the Staff of the Bristol Royal Infirmary.
5. Elected by the Staff of the Bristol General Hospital.
6. Elected by the Faculty of the Bristol Medical School.

COURSES OF LECTURES.

WINTER SESSION.

MEDICINE.

WILLIAM H. SPENCER, M.A., M.D. Cantab., Physician to the
Bristol Royal Infirmary ; and
E. MARKHAM SKERRITT, M.D. Lond., B.S., B.A., M.R.C.P.,
Physician to the Bristol General Hospital.

SURGERY.

NELSON C. DOBSON, F.R.C.S., Surgeon to the Bristol General
Hospital.

DESCRIPTIVE AND SURGICAL ANATOMY.

F. RICHARDSON CROSS, M.B. Lond., F.R.C.S., Surgeon to the
Bristol Royal Infirmary.

PRACTICAL ANATOMY.

DEMONSTRATOR — WILLIAM H. HARSANT, F.R.C.S.,
Assistant Surgeon to the Bristol Royal Infirmary.

This Department is under the superintendence of the Lecturer
on Anatomy. The Demonstrator and the Medical Tutor direct the
Students in their dissections.

PHYSIOLOGY.

R. SHINGLETON SMITH, M.D. Lond., B.Sc., M.R.C.P.,
Physician to the Bristol Royal Infirmary.

CHEMISTRY.

THOMAS COOMBER, F.C.S., Master of the Bristol Trades and
Mining Schools.

HYGIENE.

DAVID DAVIES, M.R.C.S., Medical Officer of Health to the
City and County of Bristol.

SUMMER SESSION.

MIDWIFERY AND DISEASES OF WOMEN.

JOSEPH G. SWAYNE, M.D. Lond., Consulting Physician-
Accoucheur to the Bristol General Hospital ; and

A. E. AUST LAWRENCE, M.D., Physician-Accoucheur to the
Bristol General Hospital.

MEDICAL JURISPRUDENCE.

REGINALD EAGER, M.D. Lond.; and
ALFRED J. HARRISON, M.B. Lond., Physician to the Bristol
General Hospital.
    This Course includes Lectures on the various forms of Insanity.

PATHOLOGY AND MORBID ANATOMY.

WILLIAM H. SPENCER, M.A., M.D. Cantab., Physician to the
Bristol Royal Infirmary; and
E. MARKHAM SKERRITT, M.D. Lond., B.S., B.A., M.R.C.P.,
Physician to the Bristol General Hospital.

OPERATIVE SURGERY AND SURGICAL PATHOLOGY.

W. POWELL KEALL, M.R.C.S., Surgeon to the Bristol General
Hospital.
    In this Course each Student performs surgical operations on the
dead body. The Course also includes the examination of diseased
structures, as illustrated in the contents of the Museum and
otherwise.

PRACTICAL SURGERY.

ARTHUR W. PRICHARD, M.R.C.S., Surgeon to the Bristol
Royal Infirmary.
    This Course includes the following subjects :—The application of
anatomical facts to Surgery, on the living person and on the dead
body. The methods of proceeding and the manipulations necessary
in order to detect the effects of disease and accidents on the living
person and on the dead body. The use of Surgical Apparatus.

MATERIA MEDICA AND THERAPEUTICS.

JOHN E. SHAW, M.B. Edin., Physician to the Bristol Royal
Infirmary.

PRACTICAL PHYSIOLOGY AND HISTOLOGY.

GEORGE F. ATCHLEY, M.B. Lond., Consulting Surgeon to the
Bristol General Hospital.
DEMONSTRATOR—G. MUNRO SMITH, M.R.C.S., L.R.C.P.

    This Course includes instruction in the use of the microscope,
the examination of the various tissues and organs of the body, and
the use of physiological instruments and apparatus.
    Each Student is required to provide himself with an efficient
microscope and accessory apparatus.

BOTANY.

ADOLPH LEIPNER, Lecturer on Botany in University College.
    The Students of this Class attend the Lecturer on Botanical
Excursions on Saturday afternoons.

PRACTICAL CHEMISTRY.

THOMAS COOMBER, F.C.S., Master of the Bristol Trades and
Mining Schools.

COMPARATIVE ANATOMY.

LLOYD MORGAN, Professor of Geology and Zoology in
University College.

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MEDICAL TUTOR—ARTHUR N. LITTLE.

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Lectures will be given in conformity with the regulation for the
Licence in Dental Surgery of the Royal College of Surgeons if a
sufficient number of pupils present themselves.

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TIME TABLE.

Winter Session.

Classes.	M.	Tu.	W.	Th.	F.	S.	Hours.
Chemistry ...	×		×		×		9 a.m.
Physiology ...	×		×		×		10 a.m.
Anatomy ...		×		×		×	9 a.m.
Medicine ...	×		×		×		11 a.m.
Surgery ...		×		×		×	9 a.m.
Hygiene ...	×				×		10 a.m.

Summer Session.

Classes.	M.	Tu.	W.	Th.	F.	S.	Hours.
Practical Physiology	×		×		×		8 a.m.
Botany		×		×		×	8 a.m.
Practical Chemistry...	×		×		×		9 a.m.
Materia Medica... ..		×		×		×	9 a.m.
Midwifery	×	×	×	×	×		8 a.m.
Practical Surgery ...		×		×		×	9 a.m.
Pathology	×		×		×		10 a.m.
Operative Surgery ...		×	×		×		10 a.m.
Medical Jurisprudence	×			×		×	10 a.m.
Comparative Anatomy		×	×		×		10 a.m.

HOSPITAL PRACTICE:—

Royal Infirmary—Medical and Surgical Practice, at 12 noon daily. Operations, Tuesday and Friday, at 1.30 p.m.
General Hospital—Medical and Surgical Practice, at 1 p.m. daily. Operations, Thursday, at 1.30 p.m.

FEES.

CHEMISTRY ... ... PHYSIOLOGY ... ... ANATOMY ... ... MEDICINE ... ... SURGERY	£5 5s. for each Course.
MIDWIFERY ... ... COMPARATIVE ANATOMY	£4 4s. for each Course.
BOTANY ... ... PRACTICAL PHYSIOLOGY ... ... PRACTICAL CHEMISTRY ... ... MATERIA MEDICA ... ... PRACTICAL SURGERY ... ... OPERATIVE SURGERY ... ... PATHOLOGY ... ... MEDICAL JURISPRUDENCE	£3 3s. for each Course.
HYGIENE	£2 2s. for each Course.

MEDICAL TUTOR FEE.—Students of Anatomy or Physiology are required to pay a Medical Tutor Fee of £2 2s. *per annum.*

PRACTICAL ANATOMY.—Students not belonging to the Anatomical Class may dissect on payment of a fee of £3 3s. per Session, in addition to the Medical Tutor Fee.

COMPOSITION FEE.—A Composition Fee of Sixty Guineas is received, which entitles the Student to the full course of Lectures required for the Degrees of the University of London, and the diplomas of the Royal College of Physicians, the Royal College of Surgeons (Membership), the Society of Apothecaries, and the Army and Navy Boards. The fee includes instruction by the Medical Tutor for two years. Should any Student fail to attend any course with sufficient regularity, unless from illness or other cause deemed satisfactory, he will have to attend again, and to pay the fee for such course beyond what he has already paid in the Composition Fee.

The Composition Fee may be paid in one sum, at the commencement of the first Session ; or in two instalments of 40 guineas at the beginning of the first Session, and 20 guineas at the beginning of the second Session.

HOSPITAL PRACTICE.—For Fees for Hospital Practice see pp. 22 and 26.

INFORMATION FOR STUDENTS.

Every Student, prior to the commencement of professional studies, is required to pass one of the Preliminary Examinations in Arts prescribed by the General Medical Council. [See foot-note.] After having passed such an examination he must be registered as a Student of Medicine at the office of the Medical Council (299 Oxford Street, London). Information on these subjects may be obtained from the Dean of the Bristol Medical School.

Students can complete in Bristol the entire course of study required for the Medical and Surgical Degrees of the University of London, and for the Diplomas of the Royal College of Physicians of London, the Royal College of Surgeons of England, the Apothecaries' Society of London, and the Army and Navy Boards. The lectures and instruction given at University College, Bristol, are adapted to the various Preliminary Arts Examinations above referred to, and also to the Matriculation * and Preliminary Scientific Examinations of the University of London; while the Medical School, the Royal Infirmary, and the General Hospital together provide for every detail of the professional curriculum required by the University of London and the above Examining Boards.

Every Student is required to pursue his medical studies for a period of four years from the date of registration before he can present himself for final examination and obtain a licence to practice. The period during which a Student must attend lectures and hospital practice, and the regulations as to the course of study, vary according to the degree or diploma he may wish to obtain. The lectures and hospital practice required by the Royal Colleges of Physicians and Surgeons and the Apothecaries' Society *can* be attended in three years. But candidates for the diplomas of these

* The University of London holds Matriculation Examinations at University College, Bristol, as one of its provincial centres, in June; and the Preliminary Examinations of the College of Preceptors, which are also recognised by the General Medical Council, are held at University College, Bristol, in March and September.

bodies must be engaged in the acquirement of professional knowledge during a fourth year. It is, therefore, strongly recommended that the compulsory work should not be compressed into the minimum time allowed, but should be distributed over the whole period of four years, according to the plan laid down on pages 14 and 15. Thus ample time will be permitted for the effectual study of each subject in its proper place in the curriculum, and the Student will be able to devote himself solely to the subjects of the several examinations as the time for passing them arrives.

All necessary information as to the course to be pursued for any particular degree or diploma will be given by the Dean of the Bristol Medical School. Further particulars regarding the Infirmary may be obtained from the Dean of the Infirmary Faculty, Dr. Spencer, and respecting the Hospital from the Dean of the Hospital Faculty, Dr. Markham Skerritt.

GENERAL REGULATIONS.

1. Every Candidate for admission as a Student is required to produce a satisfactory testimonial of good character.

2. Every Student on his admission is required to subscribe in the General Register a declaration of acquiescence in the Regulations of the School.

3. Cards of admission to all or any of the Classes can be obtained only of the Dean, to whom all fees are to be paid in advance. The cards are to be taken to be countersigned by the Lecturers respectively, and *attendance on each Class dates from such signature.*

4. The attendance of Students on Lectures is registered. Periodical Examinations are held in all the Classes in accordance with the requirements of the Examining Boards, and attendance on these examinations is essential.

5. Students intending to present themselves for examination at the Royal College of Surgeons are required to give due notice to the Dean, and to pass a Test Examination in those subjects on which they will be examined at the College.

6. Certificates of attendance will be withheld from any Student whose conduct or attendance shall be deemed unsatisfactory.

7. In the event of faulty attendance, idleness, or misconduct on the part of any Students, the same will be reported to their parents or guardians after each of the periodical Class Prize Examinations.

8. The discipline of the School generally is under the charge of the Dean, or, in his absence, of the Medical Tutor, who will report any instances of misconduct. During the attendance of a Lecturer in any room for the purpose of teaching, he is charged with the maintenance of order therein.

9. The power of suspending or expelling any Student for misconduct, whether within the precincts of the School or elsewhere, is vested in the Governing Body.

MEDICAL TUTOR.

The Medical Tutor is in constant attendance at the School to assist Students in their practical Anatomical and Physiological studies.

ORDER OF STUDY.

FIRST YEAR.

𝔚inter 𝔖ession.	𝔖ummer 𝔖ession.
Anatomy (bones, joints, muscles, and viscera).	Botany.
	Materia Medica.
Physiology.	Practical Chemistry.
Chemistry.	Practical Physiology & Histology.
Dissections.	Practical Pharmacy.
Surgical Hospital Practice.	Surgical Hospital Practice.
Post Mortem Demonstrations.	Examination of Surgical Patients.
	Post Mortem Demonstrations.

SECOND YEAR.

𝔚inter 𝔖ession.	𝔖ummer 𝔖ession.
Anatomy.	Midwifery.
Physiology.	Practical Surgery.
Dissections.	Comparative Anatomy (for F.R.C.S., &c.).
Medical Hospital Practice.	Medical Hospital Practice.
Surgical Hospital Practice.	Surgical Hospital Practice.
Surgical Clinical Lectures.	Surgical Clinical Lectures.
Post Mortem Demonstrations.	*Post Mortem* Demonstrations.

N.B.—At the end of the SECOND WINTER SESSION *the Student should be prepared to pass the Primary Examination of the Royal College of Surgeons, or the equivalent examination of some other Examining Board.*

THIRD YEAR.

𝔚inter 𝔖ession.	𝔖ummer 𝔖ession.
Medicine.	Medical Jurisprudence.
Surgery.	Pathology and Morbid Anatomy.
Medical Hospital Practice.	Operative Surgery.
Medical Clinical Lectures.	Medical Hospital Practice.
Surgical Hospital Practice.	Medical Clinical Lectures.
Surgical Clinical Lectures.	Surgical Hospital Practice.
Post Mortem Demonstrations.	Surgical Clinical Lectures.
	Post Mortem Demonstrations.

FOURTH YEAR.

Winter Session.	Summer Session.
Medicine.	Medical Hospital Practice.
Hygiene.	Medical Clinical Lectures.
Medical Hospital Practice.	*Post Mortem* Demonstrations.
Medical Clinical Lectures.	
Post Mortem Demonstrations.	

NOTE.—Students who intend to complete their Lectures and Hospital Practice in three years must attend Lectures on Medicine during the second Winter Session, and Lectures on Clinical Medicine during the Second Winter and Summer Sessions.

DRESSERSHIPS.—Students are strongly advised not to become Dressers until after passing the Primary Examination.

CLINICAL CLERKSHIPS may be most advantageously held in the third or the fourth year.

PRACTICAL MIDWIFERY.—Students who have attended the Midwifery Course will be provided with cases to attend, under competent supervision.

CLINICAL STUDY OF THE DISEASES OF WOMEN (as required for the L.R.C.P. Lond. Exam.).—Six months should be devoted to this subject in the third or the fourth year.

INSTRUCTION IN VACCINATION may conveniently be obtained in the third or the fourth year.

PRIZES AND CERTIFICATES OF HONOUR.

Prizes and Certificates of Honour are publicly distributed at the beginning of each Summer Session to the Students who have been successful in the examinations of the year.

No prize can be obtained twice by the same Student.

Prizes and Certificates of Honour are awarded in *each* of the following subjects:—

FOR FIRST YEAR'S STUDENTS.—Anatomy and Physiology—Chemistry—Materia Medica—Practical Physiology and Histology—Botany—Practical Chemistry.

FOR SECOND YEAR'S STUDENTS.—Anatomy—Physiology—Practical Anatomy—Midwifery—Practical Surgery. *Certificates* in Comparative Anatomy.

FOR THIRD YEAR'S STUDENTS.—Medicine (open to Students of the third or the fourth year)—Surgery—Pathology—Medical Jurisprudence—Operative Surgery.

FOR FOURTH YEAR'S STUDENTS.—*Certificates* in Hygiene.

HOSPITAL PRACTICE AND CLINICAL LECTURES.

Hospital Practice may be attended either at the Bristol Royal Infirmary or at the Bristol General Hospital.—See. pages 19 and 24.

BRISTOL ROYAL INFIRMARY.

Honorary and Consulting Physicians:
FREDERICK BRITTAN, M.D.
ALEXANDER FAIRBROTHER, M.D.
EDWARD LONG FOX, M.D.

Honorary and Consulting Surgeons:
JOHN HARRISON, F.R.C.S.
AUGUSTIN PRICHARD, F.R.C.S.

Physicians:
WILLIAM H. SPENCER, M.A., M.D., Cantab., *Lecturer on
Medicine and Pathology at the Medical School.*
R. SHINGLETON SMITH, M.D. Lond., B.Sc., M.R.C.P., *Lecturer
on Physiology at the Medical School.*
HENRY WALDO, M.D.
JOHN E. SHAW, M.B. Edin., *Lecturer on Materia Medica at
the Medical School.*

Assistant Physician:
ARTHUR B. PROWSE, M.D. Lond., F.R.C.S.

Surgeons:
EDMUND C. BOARD, M.R.C.S.
CHRISTOPHER H. DOWSON, M.R.C.S.
ARTHUR W. PRICHARD, M.R.C.S., *Lecturer on Practical
Surgery at the Medical School.*
F. RICHARDSON CROSS, M.B. Lond., F.R.C.S., *Lecturer on
Anatomy at the Medical School.*
J. GREIG SMITH, M.A., M.B., C.M.

Assistant Surgeon:
WILLIAM H. HARSANT, F.R.C.S., *Demonstrator of Anatomy
at the Medical School.*

House-Surgeon:
J. PAUL BUSH, M.R.C.S.

House-Physician:
J. FENTON EVANS, M.B., C.M., Edin.

Junior Medical Officer and Pathologist:
J. DACRE, M.R.C.S.

THE Infirmary was founded in the year 1735, and is one of the largest provincial hospitals in England. It contains 264 beds.

The Infirmary has recently undergone a complete renovation in accordance with the most approved modern principles of hospital construction. It includes a large ward exclusively appropriated to children, separate ward for Eye cases and other special purposes, and two wards apart from the main building for cases requiring isolation. It is provided with all the necessary appliances for a complete clinical education.

IN-PATIENTS.

Medical and Surgical cases are admitted daily at eleven o'clock. Nearly 3,000 In-patients are annually treated in the wards.

OUT-PATIENTS.

The Out-patient department is very extensive, upwards of 20,000 patients being annually prescribed for, and the whole of its resources are utilised for the instruction of Students. This department is under the charge of the Physicians and Surgeons and the Assistant-Surgeon. Students have opportunities for examining the cases, and are instructed in diagnosis and modes of treatment. For Students this department is of very great value, as the diseases treated in it constitute the large majority of ordinary cases met with in practice.

THE LIBRARY

contains nearly 3,000 volumes, comprising most of the standard works on Medicine, Surgery, and the cognate sciences; also the Medical Periodicals of the day. Students are allowed to take home any books they may require.

THE MUSEUM

(Founded by Richard Smith, Esq., formerly Surgeon to the Infirmary)

is open to all Students, under the supervision of the Curator. It contains a very large series of preparations of diseased bones; a remarkable collection of calculi, including upwards of 500 groups; numerous pathological preparations, arranged with a special view to the study of pathology; a Materia Medica collection; and a large collection of illustrative microscopic slides.

A Preparation Room and a Histological Room are attached to the Museum, in which the Students have the opportunity of working under instruction and supervision.

THE DISPENSARY AND LABORATORY.

In this department Students are instructed in Practical Pharmacy, the analysis of urine, and other chemical manipulations connected with practical medicine.

CLINICAL INSTRUCTION.

(See Time Table on page 27.)

In the Wards.—The wards are visited daily, by the Physicians at twelve o'clock and by the Surgeons at one o'clock, when Clinical instruction is given to the Students in attendance.

On Saturdays the Physicians meet at one o'clock, and the Surgeons meet at half-past one o'clock, in the wards, for consultation on such cases as may require it.

In the Out-Patient Department.—Instruction is given on four days in the week, at twelve o'clock, by the Physicians and Surgeons.

Operations are performed, except in cases of emergency, on Tuesdays and Fridays at half-past one o'clock.

Clinical Lectures are given regularly during the Winter and Summer Sessions, by the Physicians on Saturdays at twelve o'clock, and by the Surgeons on Fridays at twelve o'clock. Attendance on these lectures is registered and certificates are given accordingly.

Post Mortem Examinations are conducted at twelve o'clock under the direction of one of the Physicians or Surgeons or the Pathologist, and demonstrations are given on the cases to the Students in attendance.

Instruction is also given in the following

SPECIAL CLINICAL DEPARTMENTS.

Ophthalmic Department.—Demonstrations and instruction in Diseases of the Eye and the use of the ophthalmoscope are given by Mr. Arthur W. Prichard on Thursdays at eleven o'clock, and by Mr. F. Richardson Cross on Saturdays at eleven o'clock.

Obstetric Department.—Special instruction in Diseases peculiar to Women is given in the wards and out-patient rooms by Mr. J. Greig Smith on Wednesdays at eleven o'clock.

Department for Diseases of the Throat and Ear.—Demonstrations and instruction, including the use of the laryngoscope and other apparatus, are given by Mr. Harsant on Tuesdays at eleven o'clock.

Department for Diseases of Children.—Special facilities are afforded for the study of children's diseases in the ward set apart for the purpose.

CLINICAL APPOINTMENTS.

Dresserships.—Students are appointed to Dresserships after the first year of study. Dressers attend to the patients in the wards and in the out-patient department, and assist at operations under the direction of the Surgeons.

Resident Dresserships.—Students are appointed by the Surgeons from the most diligent and qualified of the Dressers to reside in the Infirmary in weekly rotation. They are in charge of all casualties, under the supervision of the resident Medical Officers. By this privilege, and from the number of accidents happening in the factories, among the shipping and in the neighbourhood generally, they have more than ordinary opportunities for learning Practical Surgery.

Clinical Clerkships.—Students are appointed to Clinical Clerkships in their third and fourth years of study. The Clinical Clerks alone have the privilege of keeping the case-books and visiting the wards by themselves, and they receive special clinical instruction.

Pathological Clerkships.—A Pathological Clerk is appointed every four months from those students who send in their names for the office. It is his duty to make all *Post Mortem* Examinations and keep the pathological register during his term of office, under the direction of one of the Physicians or Surgeons or the Medical Superintendent.

Obstetric Clerkships.—Students who have attended lectures on Midwifery, and also entered to the Surgical practice of the Infirmary, may take out an Obstetric Clerkship under the Surgeon

in charge of the Obstetric department. The Obstetric Clerks have the privilege of keeping the case-books and assisting at operations and examinations of patients.

PRIZES.

Suple's Medical Prize, consisting of a Gold Medal of the value of Five Guineas, and about Seven Guineas in money, is given annually to the successful candidate of the fourth year in the Examination held by the Physicians at the end of the Winter Session. The examination comprises reports of cases in the medical wards, and the preparation of morbid specimens illustrative of disease, accompanied, if possible, by microscopic and chemical illustrations, besides written replies to questions in Medicine.

Suple's Surgical Prize, open to Students of the third year, corresponds in value and character to the Medical one described above. In this case the examination is conducted by the Surgeons at the end of the Winter Session, and comprises Surgical subjects only.

Clarke's Prize.—The interest of £500, bequeathed by the late Henry Clarke, Consulting Surgeon to the Infirmary, will be given annually to the most successful student of the third year at the examinations held at the Medical School, provided he has attended his Hospital Practice at the Bristol Royal Infirmary, and can produce certificates of good moral character.

Tibbits' Memorial Prize.—A prize founded by public subscription in memory of the late R. W. Tibbits, Surgeon to the Infirmary, being the interest of £315, is offered for competition annually, on the second Thursday in July, to the advanced students for the greatest proficiency in Practical Surgery.

Crosby Leonard's Prize.—The interest of £300, bequeathed by the late Crosby Leonard, Consulting Surgeon to the Infirmary, will be awarded annually, on the last Thursday in September, to that Student who, during the third year of his attendance on the Surgical practice of the Infirmary, shall in the opinion of the Surgeons furnish the best written reports of ten surgical cases (not being those taken for the Surgical Suple Prize) occurring in the wards.

Pathological Prize.—The Pathological Clerk, at the expiration of his term of office, will receive a prize of the value of Three Guineas, if his duties have been performed to the satisfaction of the Faculty.

ADMISSION OF STUDENTS.

Students may enter for Medical or Surgical Practice for six months or more. Those who enter for Medical or Surgical Practice are entitled to attend the practice of all the Physicians or all the Surgeons at the usual daily visits, and to attend Clinical lectures and the instruction in the special departments. Those who also take out Clinical Clerkships or Dresserships attach themselves to some one Physician or Surgeon, under whose direction they act and from whom they receive special Clinical instruction.

Application for information and admission to be made to the Dean of the Faculty, Dr. Spencer.

FEES.

An Entrance Fee of Two Guineas to the Infirmary, and Subscription of One Guinea per annum to the Library.

	Six Months.	One Year.	Perpetual.
Medical Practice ..	7 Guineas	12 Guineas	20 Guineas
Surgical Practice ..	7 "	12 "	20 "
Medical and Surgical Practice together, in one payment		20 "	35 "

The above Fees include Clinical Lectures.

Clinical Clerkship ..	5 Guineas	8 Guineas
Dressership	5 Guineas for each six months.	
Obstetric Clerkship..	3 Guineas for each three months.	

All Fees must be paid to the Secretary, at the Infirmary.

BRISTOL GENERAL HOSPITAL.

Honorary and Consulting Physician:
GEORGE F. BURDER, M.D., F.R.C.P.

Honorary and Consulting Surgeons:
ROBERT W. COE, F.R.C.S.   W. MICHELL CLARKE, M.R.C.S.
HENRY MARSHALL, M.D., F.R.C.S. Edin., F.R.S. Edin.
GEORGE F. ATCHLEY, M.B. Lond.

Honorary and Consulting Physician-Accoucheur:
JOSEPH G. SWAYNE, M.D. Lond., *Lecturer on Midwifery at the
Medical School.*

Physicians:

E. MARKHAM SKERRITT, M.D. Lond., B.S., B.A., M.R.C.P.,
*Lecturer on Medicine and on Pathological Anatomy at the
Medical School.*

ALFRED J. HARRISON, M.B. Lond., *Lecturer on Medical
Jurisprudence at the Medical School.*

BARCLAY J. BARON, M.B., C.M. Edin.

Surgeons:

F. POOLE LANSDOWN, M.R.C.S.

NELSON C. DOBSON, F.R.C.S., *Lecturer on Surgery at the
Medical School.*

WILLIAM P. KEALL, M.R.C.S., *Lecturer on Operative Surgery
at the Medical School.*

CHARLES F. PICKERING, F.R.C.S.

Physician-Accoucheur:
A. E. AUST LAWRENCE, M.D., *Lecturer on Midwifery and
Diseases of Women at the Medical School.*

Dentist:
THOMAS C. PARSON, M.R.C.S., *Lecturer on Dental Mechanics
at the Medical School.*

House-Surgeon:
W. J. PENNY, M.R.C.S., L.R.C.P.

Physicians' Assistant:
H. T. RUDGE, M.R.C.S.

Assistant House-Surgeon:
C. N. CORNISH, M.R.C.S.

THIS Hospital, founded in 1832, is situated in a populous district near the Docks, Collieries, Manufactories, and Railway Stations, from which sources the Wards are supplied with a great variety of important cases.

The present building was completed and occupied in 1858, and is furnished with many modern improvements. It contains 164 beds, with a special Children's Ward, and also Private Wards and Isolated Wards.

OUT-PATIENT DEPARTMENT.

This Department affords a large and most valuable field of observation. It is under the care of the Physicians and Surgeons, by whom the Students are instructed in the practical examination of patients and the treatment of the various forms of disease here met with.

In-Patients are admitted daily (Sundays excepted) at half-past twelve o'clock.

Out-Patients are admitted daily at the same hour.

Casualties.—Emergencies and casualties are admitted at all hours by the Resident Medical Officers.

SCHOLARSHIPS.

Martyn Memorial Entrance Scholarship.—This Scholarship, of the value of £20, founded by public subscription in memory of the late Dr. Samuel Martyn, Physician to the Hospital, is awarded annually, at the commencement of the Winter Session, after a competitive examination in subjects of general education.

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The *Martyn Memorial Scholarship* and the *Lady Haberfield Prize*, when not awarded as above, are available for the remuneration of a Museum Curator, to be appointed from amongst the

students after a competitive examination in subjects bearing upon the duties of the office.

The rules relating to the several Scholarships may be had on application.

THE LIBRARY.

The Library, with a commodious Reading Room, contains a good and increasing collection of Medical Works, the principal Journals, excellent Microscopes, and other Physical Apparatus. Instruction in the use of the Microscope and Chemical Analysis, in connection with the Clinical Teaching, is given by the Faculty.

THE MUSEUM.

The Museum contains numerous interesting and instructive specimens. Curators and Pathological Clerks are appointed from the Students of the Hospital. (See Scholarships, page 23.)

CLINICAL INSTRUCTION.

The whole of the practice of the Hospital, including the special Departments mentioned below, is open to the Students of the Hospital.

Wards.—The Wards are visited daily, by the Physicians at two o'clock, and by the Surgeons at half-past one, when general Clinical Instruction is given.

Out-Patient Department.—Instruction is given daily by the Physicians and Surgeons, at one o'clock. Students are specially advised to avail themselves of the opportunity which this Department affords of acquiring accuracy in the physical examination of patients and the diagnosis and treatment of disease.

Operations.—Surgical operations, except in cases of emergency, are performed on Thursdays, at half-past one o'clock.

Clinical Lectures are given throughout the Winter and Summer Sessions, by the Physicians on three days of the week, and by the Surgeons every Wednesday at twelve o'clock. (See Time Table, page 27.)

Post Mortem Examinations are conducted, and Pathological Demonstrations given, by the Physicians and Surgeons, at two o'clock.

SPECIAL DEPARTMENTS.

In these Departments instruction is given in the use of the various instruments and appliances special to each.

Diseases of Women.—Dr. Aust Lawrence visits on Mondays and Thursdays at twelve o'clock, and gives Clinical Instruction in the Diseases peculiar to Women.

Diseases of the Skin.—Patients affected with Skin Diseases are seen by Dr. Harrison, at one o'clock, on Fridays.

Diseases of the Eye.—In this Department, Ophthalmic cases are seen on Wednesdays, at one o'clock, by Mr. Keall.

Diseases of the Ear and Throat.—Patients are seen on Mondays, at twelve o'clock, by Mr. Pickering.

Diseases of Children.—In addition to the special Children's Ward in the Hospital, the Out-Patient Department affords abundant material for the study of the Diseases of Children.

Dental Surgery.—Mr. Parson attends on Mondays and Thursdays, at nine o'clock, and gives practical instruction in Dental Surgery.

PRACTICAL PHARMACY.

Private instruction in Practical Pharmacy is given to Students on payment of a Laboratory Fee to the Hospital.

CLINICAL CLERKS, DRESSERS, AND RESIDENT PUPILS.

Clinical Clerks.—While ordinary Pupils enter to the general practice and accompany the Physicians on their usual visits, Students who become Clinical Clerks, besides this, place themselves under one Physician, from whom they receive private instruction in the practice of medicine. The Clinical Clerks alone have the privilege of recording cases and visiting the wards by themselves.

Dressers reside in the Hospital by rotation and free of expense. They have the privilege of dressing the cases in the wards, and of attending the minor casualties, and also the severe accidents, under the direction of the House-Surgeon.

Obstetric Clerks.—Students can enter as Obstetric Clerks, under the Physician-Accoucheur, for periods of three months.

Dressers to the Eye and Ear Departments respectively are appointed from amongst the Students of the Hospital, for periods of three months, without payment of fee.

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Fees are to be paid to the Secretary of the Hospital, Lieutenant HENRY FOX, R.N.

BRISTOL GENERAL HOSPITAL.

TIME TABLE OF CLINICAL INSTRUCTION.

	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
VISITS TO WARDS— PHYSICIANS	2 p.m. Dr. Markham Skerritt.	2 p.m. Dr. Harrison. Dr. Baron.	2 p.m. Dr. Markham Skerritt.	2 p.m. Dr. Baron.	2 p.m. Dr. Markham Skerritt. Dr. Harrison.	
VISITS TO WARDS— SURGEONS	1.30 p.m. The Surgeon for the week.	1.30 p.m. Mr. Lansdown. Mr. Dobson	1.30 p.m. Mr. Keall. Mr. Pickering.	1.30 p.m. The Surgeon for the week.	1.30 p.m. Mr. Lansdown. Mr. Dobson.	1.30 p.m. Mr. Keall. Mr. Pickering.
OPERATIONS				1.30 p.m.		
MEDICAL OUT-PATIENTS	1 p.m. Dr. Baron.	1 p.m. Dr. Harrison. Dr. Baron.	1 p.m. Dr. Markham Skerritt.	1 p.m. Dr. Baron.	1 p.m. Dr. Harrison.	1 p.m. Physician's Assistant.
SURGICAL OUT-PATIENTS	1 p.m. The Surgeon for the week.	1 p.m. Mr. Lansdown. Mr. Dobson.	1 p.m. Mr. Keall. Mr. Pickering.	1 p.m. The Surgeon for the week.	1 p.m. Mr. Lansdown. Mr. Dobson.	1 p.m. Mr. Keall. Mr. Pickering.
CLINICAL LECTURES	Medical.—2 p.m. Dr. Baron.	Medical.—2 p.m. Dr. Harrison.	Surgical.—12 noon. The Surgeons in turn.		Medical.—2 p.m. Dr. Markham Skerritt.	
DISEASES OF WOMEN	12 noon. Dr. Aust Lawrence.			12 noon. Dr. Aust Lawrence.		
DISEASES OF THE SKIN		1 p.m. Dr. Harrison.			1 p.m. Dr. Harrison.	
DISEASES OF THE EYE			1 p.m. Mr. Keall.			1 p.m. Mr. Keall.
DISEASES OF THE EAR AND THROAT	12 noon. Mr. Pickering.		1.30 p.m. Mr. Pickering.			
DENTAL SURGERY	9 a.m. Mr. Parson.			9 a.m. Mr. Parson.		
POST-MORTEM EXAMINA-TIONS	At 2 p.m. by the Physicians and Surgeons.					

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AND

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Practical Chemistry ... ... { *Prize*, F. F. Jones.
Certificates, R. Hedley, C. T. Hudson.

Practical Physiology and Histology ... ... { *Prize*, G. H. Barker.
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Obstetric Medicine ... ... { *Prize*, A. J. Tomkins.
Certificates, T. Richards, H. I. Pocock, (A. R. Aubrey, A. W. Riddell, *aeq.*), W. J. Hill, W. H. Stevens.

Practical Surgery ... ... { *Prize*, A. J. Tomkins.
Certificates, H. I. Pocock, T. Richards, J. E. Trask.

Medical Jurisprudence ... ... { *Prize*, H. J. Capron.
Lecturer's Prize, A. M. Gray.

Pathology and Morbid Anatomy. *Prize*, A. M. Gray.

WINTER SESSION.

Anatomy and Physiology, Junior Classes ... . } *Prize*, T. M. Stiles.

Junior Class of Anatomy ... ... { *Lecturer's Prize*, B. R. T. Trevelyan.
Certificates, F. Lace, B. Hamilton, J. H. Fardon.

Junior Class of Physiology ...	*Certificates*, F. Lace, B. Hamilton, B. R. T. Trevelyan, H. Hamilton, J. H. Fardon.
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Senior Class of Physiology ...	*Prize*, W. M. Barclay. *Certificates*, H. F. Semple, A. H. Joseph, H. A. Burleigh, R. J. Marks, C. E. S. Flemming, C. T. Hudson, F. H. Hudson.
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Clark's Prize (for 1883)	W. G. Thorold.

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Sanders Scholarship, of the value of £22 10s., for proficiency in Medicine, Surgery, and Obstetric Medicine	W. J. T. Barker.
Lady Haberfield Prize, of the value of £30, for proficiency in Medicine, Surgery, and Obstetric Medicine	F. W. Weir.
Lady Haberfield Museum Curatorship, of the value of £30.	F. W. Weir.

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